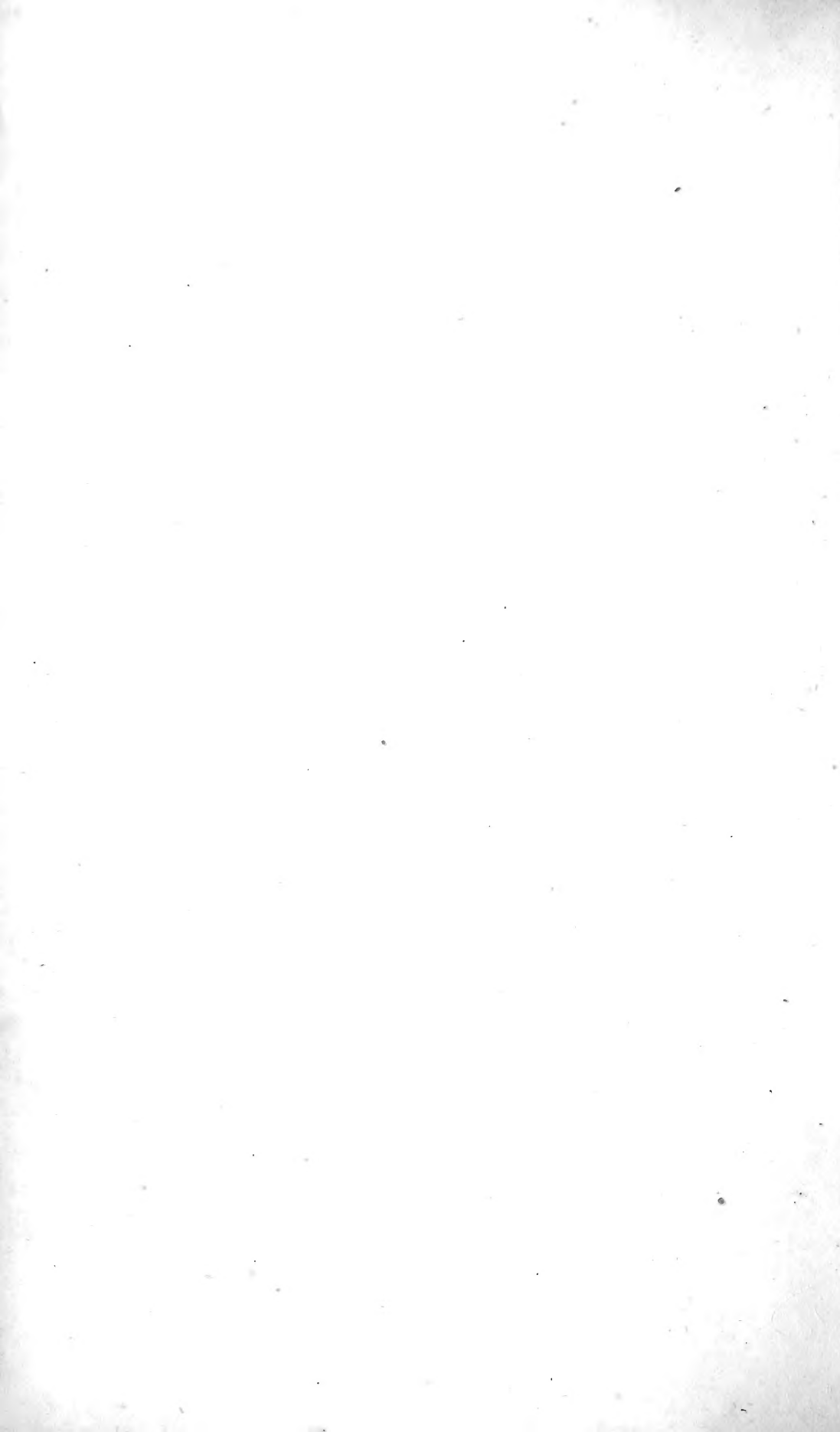


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THE
G A R D E N E R
A M A G A Z I N E
OF
HORTICULTURE AND FLORICULTURE

EDITED BY
WILLIAM THOMSON

DALKEITH GARDENS

AUTHOR OF 'A PRACTICAL TREATISE ON THE CULTURE OF THE GRAPE VINE'

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THE GARDENER.

JANUARY 1869.

TO OUR READERS.

 N making our appearance before you on this the first day of a new year, we wish you the usual compliments of the season. At the same time, we feel that you are entitled to more than this at our hands. Thanks for your kind patronage in the past, and for the indulgence you have extended to our many defects. We earnestly hope to retain the former and to remedy the latter. With a view to this, we have made such additions to our regular staff of writers, including some of the most successful practical gardeners in Britain, as will enable us to fill the pages of the 'Gardener' during the current year with valuable information on nearly every topic that can interest the horticulturist, to whatever class he may belong. The important subject of the cultivation of vegetables and proper management of the kitchen-garden has been intrusted to Mr D. Thomson of Drumlanrig, author of 'The Handy Book of the Flower-Garden,' &c. The Rev. S. Reynolds Hole will continue his delightful papers on the Rose. The subject of hardy fruit cultivation will be treated of in detail. We shall continue our papers on the culture of forced fruit. Having discovered during the last year that many of our readers were dissatisfied because we omitted detailed reports of the great horticultural exhibitions of the season,—with a view to meet their

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wishes we shall give reports of the most important of those held during the present year, even if we have to add an additional half-sheet to prevent the abridgment of our usual matter.

We shall be happy to receive communications from our readers on all matters connected with Horticulture and Floriculture, whether these be intended to convey or elicit information. Anything that can give impetus to the great horticultural wave which we hope ere long to see inundating the whole land, and carrying with it increased happiness, comfort, and refinement, alike to the dwellers in the humble cottage and the lordly hall, shall have our earnest and persevering attention.



THE ROSE.

(Continued from page 517 of 1868.)

CHAPTER VI.—MANURES.

I OPENED noiselessly the other morning, that I might enjoy a father's gladness, the door of a room in which my little boy, "six off," was at his play. He was evidently entertaining an illustrious visitor, a beloved and honoured guest. The table, surrounded by every available chair, with a fire-screen for the front door, and a music-stool, inverted atop to represent the main stack of chimneys, was converted into a palace of art. The banquet had just commenced, and the courteous host was recommending to his distinguished guest (a very large and handsome black retriever, by name "Colonel") the viands before him. These viands, upon a cursory glance through the chair-legs, did not strike me as of an appetising or digestible character—the two *pièces de résistance* consisting of a leg-rest and a small coal-scuttle, and the side-dishes being specimens of the first Atlantic Telegraph Cable, presented to me by Sir Charles Bright, with a selection of exploded cartridges, sea-shells, ninepins, and keys. In the vivid imagination of childhood, notwithstanding, they represented all the luxuries dearest to the palate of youth; and if the Colonel, who, by the by, was in full uniform, made from the supplement of the 'Times' newspaper, and was *decoré* with the Order of the String and Penwiper, had partaken of a tithe of the delicacies pressed on him, and according to the order in which they were served, there must have been inevitably speedy promotion in his regiment. The entertainment commenced with cheese, passed on to

hasty-pudding and beer, which was followed in rapid succession by peaches, beef, roley-poley, hare, more hasty-pudding, honey, apricots, boiled rabbits, &c. "And now, Colonel, dear," were the last words I heard, "you shall have some custard and pine-apple, and then we'll smoke a cigar."

In like manner does the wee golden-haired lassie delight to do homage to the queen of her little world, her doll, watching her tenderly, and singing a lullaby which, regarding the condition of those two immense blue eyes, appears to be quite hopeless; then decking her with every bit of finery which she can beg from mammy or nurse, and waiting upon her with a fond untiring service.

And even so did I, in the childhood of that life which is always young—do not our hearts foreknow, my brothers, the happy truth, which old men certify, that the love of flowers is of those few earthly pleasures which age cannot wither?—even so did I, in

"My sallet days,
When I was green in judgment,"

essay, with an enthusiastic though oftentimes mistaken zeal, to propitiate and to serve the Rose. And specially, as with my little boy and his large idol, in the matter of food. I tried to please her with a great diversity of diet. I made anxious experiment of a multiplicity of manures—organic and inorganic, animal and vegetable, cheap and costly, home and foreign. I laboured to discover her favourite dish as earnestly as the alchymist to realise the Philosopher's Stone, but I differed from the alchymist in one essential point—I *found it*!

Where? Not down among the bones. I tried bones of all denominations—bones in their integrity, bones crushed, bones powdered, bones dissolved with sulphuric and muriatic acid, as Liebig bade; and I have a very high admiration of the bone as a most sure and fertilising manure. For agricultural purposes, for turnips, for grass recently laid down, or for a starved exhausted pasture, whereupon you may write your name with it; and in horticulture, for the lighter soils, for the vine-border, for plants (the *Pelargonium* especially), it is excellent; but in the Rosary, although a *magnum* (I feel in writing the pun like the little boy who chalked "No Popery" on Doctor Wiseman's door, half ashamed of the deed, and desirous to run), it is not the *summum bonum* of manures.

Nor up the chimney—though, for Roses on the Manetti Stock, and for Tea-Roses, soot is good manure, and useful as a surface-dressing for hot, dry soils. Nor among the autumn leaves, although these also, decayed to mould, are very advantageous to the Teas, Noisettes, and Bourbons, and to all Roses grown on their own roots. Sure and great

is their reviving power, which gives back to the ground, according to the gracious law of Providence, the strength which was borrowed from it, but not so great as that old lady hoped, who, bringing home a mistaken impression, after listening to a conversation between two gardeners on the beneficial influence of leaf-mould on Tea-Roses, collected for weeks the morning and evening remains of the Tea-pot, and applied them to her Rose-trees "to transform them," as she told her acquaintance (and I am assured of the fact by one of them), "into Tea-scented Chinas next summer."

Nor, crossing the seas, among those bird-islands of Peru, Bolivia, Patagonia, where, rainless, barren, deserted, as they seemed to man, the fish-fed fowls of the ocean were accumulating for centuries a treasure-heap more precious than gold—millions upon millions of tons of rich manure, which has multiplied the food of nations throughout the civilised world, and still remains in immense abundance for us and generations after us. Guano, nevertheless, is not *the* manure for Roses. Its influence is quickly and prominently acknowledged by additional size and brightness of foliage, but the efflorescence, so far as my experiments have shown, derives no advantage as to vigour or beauty; and even on the leaf the effect is transitory.

Nor in the guano of *animal implume*—not in the soil called night. The Romans revered Cloacina, the goddess of the sewers, and the statue which they found of her in the great drains of Tarquinius, was beautiful as Venus's self; but they honoured her, doubtless, only as a wise sanatory commissioner, who removed their impurities, and, so doing, brought health to their heroes and loveliness to their maidens. They only knew half her merits; but in Olympus, we may readily believe, there was fuller justice done. Although weaker goddesses may have been unkind—may have averted their divine noses when Cloacina passed, and made ostentatious use of scent-bottle and pocket-handkerchief—Flora, and Pomona, and Ceres would ever admire her virtues, and beseech her benign influence upon the garden, the orchard, and the farm. But the terrestrials never thought that *fax urbis* might be *lux orbis*, and they polluted their rivers, as we ours, with that which should have fertilised their lands. And we blame the Romans very much indeed; and we blame everybody else very much indeed; and we *do hope* the time will soon be here when such a sinful waste will no longer disgrace an enlightened age; but, beyond the contribution of this occasional homily, it is, of course, no affair of ours. Each man assures his neighbour that the process of desiccation is quite easy, and the art of deodorising almost nice; but nobody "goes in." The reader, I have no doubt, has with me had large experience of this perversity in neighbours, and oftentimes has been perplexed and pained

by their dogged strange reluctance to follow the very best advice. There was at Cambridge, five-and-twenty years, an insolent, foul-mouthed, pugnacious sweep, who escaped for two terms the sublime licking which he "annexed" finally, because no one liked to tackle the soot. There were scores of undergraduates, to whom pugilism was a thing of beauty and a joy for ever, who had the power and the desire to punish his impudence, but they thought of the close wrestle,—they reflected on the "hug," and left him. To drop metaphor, there is no more valuable manure; but it is, from circumstances which require no explanation, more suitable for the farm than the garden, especially as we have a substitute, quite as efficacious, and far more convenient and agreeable in use.

No, not "burnt earth." I spoke as earnestly as I could of the value of that application in my last chapter (p. 513), because it is impossible in many cases to exaggerate its worth, but I alluded at the same time to another indispensable addition which must be made to the soil of a Rose-garden, and now I will tell you what it is: I will tell you where I found the Philosopher's Stone in the words of that fable by Æsop, which is, I believe, the first of the series, and which was first taught to me in the French language,—"*Un coq, grattant sur un fumier, trouvait par hasard une pierre précieuse*;" or, as it is written in our English version, "A brisk young cock, in company with two or three pullets, his mistresses, raking upon a dunghill for something to entertain them with, happened to scratch up a jewel." The little allegory is complete: I was the brisk young cock, my favourite pullet was the Rose, and in a heap of farmyard manure I found the gift so precious to her.

Yes, here is the mine of gold and silver, gold medals and silver cups for the grower of prize Roses; and to all who love them, the best diet for their health and beauty, the most strengthening tonic for their weakness, and the surest medicine for disease. "Dear me!" exclaims some fastidious reader, "what a nasty brute the man is! He seems quite to revel in refuse, and to dance on his dunghill with delight!" The man owns to the soft impeachment. If the man had been a Roman Emperor he would have erected the most magnificent temple in honour of Sterculus, the son of Faunus, that Rome ever saw. Because Sterculus, the son of Faunus—so Pliny tells—discovered the art and advantage of spreading dung upon the land; and he should have appeared in the edifice dedicated to him graven larger than life in pure gold, riding proudly in his family chariot, the *currus Stercurosus* (*Anglice*, muck-cart), with the agricultural trident in his hand. As it is, I always think of him with honour when I meet the vehicle in which he loved to drive—have ever a smile of extra sweet-

ness for the wide-mouthed waddling charioteer, and am pained at heart to find the precious commodity fallen, or, as they say in Lancashire, "slattered," on the road. Ah! but once, that fastidious reader will be pleased to hear, the man brought himself to sore shame and confusion by this wild passionate affection. Returning on a summer's afternoon from a parochial walk, I inferred from wheel-tracks on my carriage-drive that callers had been and gone. I expected to find cards in the hall, and I saw that the horses had kindly left theirs on the gravel. At that moment, one of those

"Grim spirits in the air,
Who grin to see us mortals grieve,
And dance at our despair,"

fiendishly suggested to my mind an economical desire to utilise the souvenir before me. I looked around and listened; no sight, no sound, of humanity. I fetched the largest fire-shovel I could find, and was carrying it bountifully laden through an archway cut in a high hedge of yews, and towards a favourite tree of "Charles Lefebvre," when I suddenly confronted three ladies, who "had sent round the carriage, hearing that I should soon be at home, and were admiring my beautiful Roses." It may be said, with the strictest regard to veracity, that they saw nothing that day which they admired, in the primary meaning of the word, so much as myself and fire-shovel; and I am equally sure that no Rose in my garden had a redder complexion than my own.

And now, to be practical, what do I mean by farmyard manure—when, and how, should it be used?

By farmyard manure I mean all the manures of the straw-yard, solid and fluid, horse, cow, pig, poultry, in conjunction. Let a heap be made near the Rosarium, not suppressing the fumes of a natural fermentation by an external covering, but forming underneath a central drain, having lateral feeders, and at the lower end an external tank, after the fashion of those huge dinner-dishes whose channels carry to the "well" the rich gravies of the baron and the haunch (here that fastidious reader collapses, and is removed in a state of syncope), so that the rich extract, full of carbonate of ammonia, and precious as attar, may not be wasted, but may be used either as liquid manure in the Rosary, or pumped back again to *baste the beef*.

How long should it remain in the heap before it is fit for application to the soil? The degree of decomposition to which farmyard dung should arrive before it can be deemed a profitable manure, must depend on the texture of the soil, the nature of the plants, and the time of its application.* In general, clayey soils, more tenacious of

* See the article on Agriculture, 'Encyclopædia Britannica,' vol. ii. p. 300.

moisture, and more benefited by being rendered incohesive and porous, may receive manure less decomposed than more pulverised soils require. Again, the season when manure is applied is also a material circumstance. In spring and summer the object is to produce an immediate effect, and it should, therefore, be more completely decomposed than may be necessary when it is laid on in autumn, for a crop whose condition will be almost stationary for several months. It was my custom for many years to apply a good covering of long fresh manure to my Rose-trees towards the end of November, and to dig it in about the end of March; and I am still of opinion that for Rose-trees on their own roots, especially the more tender varieties, such as Teas and Bourbons, and for Roses on the Manetti Stock, this system is advantageous. The straw acts as a protection from frost, and the manure is gradually absorbed, to the enrichment of the soil and nourishment of the roots. But I have since found, that as my Roses are, for the most part, on the Brier (of which I am the faithful admirer, despite recent condemnations from my learned brothers, of which I shall speak more fully hereafter), and do not require such protection, except when recently transplanted, I obtain a more satisfactory result by digging in the manure, well-decomposed, at the beginning of winter, and by giving a surface-dressing, when it seems most required, in the spring.

This surface-dressing was communicated to me some years ago by Mr Rivers, and it is by far the most effective which I have ever tried. More recently he has published it, as follows:—"The most forcing stimulant that can be given to Roses is a compost formed of horse-droppings from the roads or stable,"—(he says nothing about a fire-shovel)—"and malt or kilndust, to be obtained from any malt-kiln, equal quantities. This, well-mixed, should then be spread out in a bed, one-foot thick, and thoroughly saturated with strong liquid manure, pouring it over the compost gently for, say two days—so that it is gradually absorbed. The compost is then fit for a summer surface-dressing, either for Roses in pots, in beds, or standard Roses. It should be applied, say in April, and again in May and June, about an inch thick, in a circle round the tree, from 12 to 18 inches in diameter. This compost is not adapted for mixing with the soil that is placed among the roots, but is for a summer surface-dressing only; and care must be taken that it is not placed in a heap or ridge after it has been mixed, for then fermentation is so violent that the smell becomes intolerable."

So powerful is this confection, that I have found one application quite sufficient; and this I apply, when the Rose-buds are formed and swelling, towards the end of May, or, in a late season, the beginning of June. I wait for the indications of rain, that the fertilising matter

may be at once washed down to the roots ; and it never fails to act as quinine and Guinness to the weakly, and as generous wine to the strong. During the extraordinary drought of last summer, I watched day after day—nay, week after week—with a patience worthy of that deaf old gentleman who would listen for two months to catch the ticking of a sun-dial, or of him who undertook the tedious task of teaching a weather-cock to crow ; and at last, feeling sure of my shower, wheeled barrow after barrow with my own hands, not seeming to have time to call for help, over the little bridge, and distributed it as a Lord Mayor turtle to recipients more greedy than aldermen. Soon the big rain came dancing to the earth, and when it had past, and I smoked my evening weed among the Rose-trees, I fancied that already the tonic had told. At all events, it is written in the chronicles of the Rose-shows how those Roses sped.

If only one application of manure is considered to be expedient, I would advise a liberal supply of farmyard dung well decomposed, and that this should be dug in, or, still better (in the case of light soils particularly), left upon the surface, after the Rose-trees are pruned in March. If not dug in, I should myself be inclined to defer the fruition of this powerful diet for a month or so ; that just as the lanky school-boy, outgrowing his strength, is placed upon a regimen of boiled eggs and roast beef, Alsopp and Bass, so the Rose-trees may have “good support,” these nursing-mothers of such beautiful babes, when they require it most. “It is believed,” writes Morton, “by observers of nature, that plants do no injury to the soil while they are producing their stems and leaves, but that it is only when the blossom and the seed requires nourishment that the plants exhaust the soil.”

Under no circumstances must manure be applied, externally or internally, when the ground is saturated with wet.

And now *majora canamus* ! Let us wash our faces, and part our hair down the middle, and go in, with a bow and a curtsy, as little children to dessert, among the great warriors and counsellors of Queen Rose. Let us hear what our chief English Rosarians say (would that my information included the teaching of those Rose-loving brothers over the border, for whom, as for all true gardeners, I have so much regard), on this, which I believe to be the most important topic which will occur for our consideration.

Mr Rivers, whom I have just quoted, and to whom all will readily give precedence, not only for “that good grey head, which all men know,” but for what he has done in the Rosarium, writes :—“I have found night-soil, mixed with the drainings of the dunghill or even with common ditch or pond water, so as to make a thick liquid, the best possible manure for Roses, poured on the surface of the soil twice

in winter, from 1 to 2 gallons to each tree; December and January are the best months: the soil need not be stirred till spring, and then merely loosened 2 or 3 inches deep with the prongs of a fork. For poor soils, and on lawns, previously removing the turf, this will be found most efficacious. Brewers' grains also form an excellent surface-dressing; they should be laid in a heap two or three weeks to ferment, and one or two large shovelfuls placed round each plant, with some peat-charcoal to deodorise them, as the smell is not agreeable."

I will quote in alphabetical sequence the other distinguished public Rosarians, who have expressed their opinions, or proved their skill at all events, in the matter. These are Mr Cant of Colchester; Mr Cranston of Hereford; Mr Francis of Hertford; Mr Keynes of Salisbury; Mr Lane of Berkhamstead; Mr Mitchell of Piltsdown; Mr George Paul, the representative of Messrs Paul & Son, Cheshunt; Mr William Paul, Waltham Cross; Mr Perkins of Coventry (a new but successful exhibitor); Mr Turner of Slough, and Messrs Wood of Maresfield. There is, of course, a very large number of other nurserymen, who grow Roses most extensively and in their fullest perfection—such as Smith of Worcester, the two firms of Dickson at Chester, Harrison of Darlington, Frettingham of Nottingham, &c.—one or more near all our cities and towns; but I have selected those who are our principal prizemen, and whose treatises and catalogues are before me.

Mr Cant says:—"In planting Roses, a hole should be made about 18 inches deep, and large enough to contain half a wheelbarrowful of compost; two-thirds of this should be strong turfy loam, and one-third well-decomposed animal manure. These should be thoroughly mixed together."

Mr Cranston writes in his 'Cultural Directions for the Rose,' which may be followed by amateurs with a sure confidence:—"I have found, after repeated trials for some years, that pig-dung is the best of all manures for Roses; next night-soil, cow-dung, and horse-dung. These should stand in a heap from one to three months, but not sufficiently long to become exhausted of their ammonia and salts. Pig-dung should be put on the ground during winter or early spring, and forked in at once. In using night-soil, mix with burnt earth, sand, charcoal-dust, or other dry substance. Apply a small portion of the mixture to each plant or bed during winter, and let it be forked in at once. Soot is a good manure, especially for the Tea-scented and other Roses on their own roots; so are wood-ashes and charcoal. Bone-dust or half-inch bones forms an excellent and most lasting manure. Guano and superphosphate of lime are both good manure for Roses, but require to be used cautiously."

Mr Keynes of Salisbury recommends "a good wheelbarrowful of compost—two-thirds good turfy loam, and one-third well-decomposed animal manure." He adds, and the words of one whose Roses, in a favourable season, cannot be surpassed in size or colour, should be remembered practically, "It is difficult to give the Rose too good a soil."

Messrs Lane of Berkhamstead write thus: "The best method of manuring beds is to dig in a good dressing of stable or other similar manure, this being the most safe from injuring vegetation in any soil, and it never does more good to Roses than when it is used as a surface-dressing. When placed, about 2 inches deep, over the surface in March, the ground seldom suffers from drought, but this is, perhaps, by some considered unsightly."

Mr George Paul, "the hero of a hundred fights," advises that "in planting the ground should be deeply trenched, and well-rotted manure be plentifully added. If the soil be old garden-soil, add good loam, rich and yellow; choose a dry day for the operation, and leave the surface loose. Stake all Standards, and mulch with litter, to protect the roots from frost." Well does this young champion sustain the ancient honours of his house, having achieved no less than forty-four first prizes at our principal exhibitions in the summer of 1868.

Mr William Paul, in his interesting work, 'The Rose-Garden,' of which a modernised edition would be very acceptable in the world of Roses, gives, in the introduction, his results of his experiments with manure. "In the summer of 1842," he writes, "six beds of Tea-scented Roses were manured with the following substances: 1, bone-dust; 2, burnt earth; 3, nitrate of soda; 4, guano; 5, pigeon-dung; 6, stable manure, thoroughly decomposed. The soil in which they grew was an alluvial loam. The guano produced the earliest visible effects, causing a vigorous growth, which continued till late in the season; the foliage was large and of the darkest green, but the flowers on this bed were not very abundant. The shoots did not ripen well, and were consequently much injured by frost during the succeeding winter. The bed manured with burnt earth next forced itself into notice; the plants kept up a steadier rate of growth, producing an abundance of clear, well-formed blossoms; the wood ripened well, and sustained little or no injury from the winter's frost. The results attendant on the use of the other manures were not remarkable; they had acted as gentle stimulants, the nitrate of soda and bones least visibly so, although they were applied in the quantities usually recommended by the vendors. . . . I think burned and charred earth the best manure that can be applied to wet or adhesive soils."

Mr Turner of Slough does not show his cards, but when he comes to play them on the green cloth or baize of the exhibition-table, no man deals more honourably, knows the game more thoroughly, holds more trump cards, or scores the honours more frequently.

Messrs Wood of Maresfield, perhaps the largest growers of the Rose in the world, commend a mixture of well-seasoned animal manure, with the top-spit of an old pasture, deep trenching, thorough draining, and a free use of the pruning-knife the first year after planting.

Concluding this long chapter, I would earnestly assure the novice in Rose-growing that there is only one exception (and that in Egypt) to the rule, "*Ex nihilo nihil fit.*" If he really means to make the Rose his hobby, and to enjoy the ride, he must feed him liberally and regularly with old oats and beans. The Rose cannot be grown in its glory without frequent and rich manure; and again I recommend that the best farmyard dung be dug in towards the end of November, if the ground is dry, and that the surface-dressing, prescribed by Dr Rivers, be administered in May or June. And if neighbours, who are not true lovers of the Rose, expostulate, and condemn the waste, quote for their edification those true words of Victor Hugo in '*Les Misérables*,' "*the beautiful is as useful as the useful, perhaps more so.*"

We have found our situation, we have prepared our soils: we will speak next of the arrangement of the Rosary, and then of the Rose itself.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

INTRODUCTION.

To whatever department of the economy of nature we turn our attention, having for our object the study of the various means by which we may obtain a desired end, there are difficulties to be overcome, barriers to be surmounted, and mysteries to be solved, of which none save those who have manfully tried can form an approximate idea. In a climate such as Britain, these difficulties are even greater than in many other portions of our globe, and to master these has been the aim and end of long lives by many of those to whom we look as the pioneers and princes of horticulture. Our seasons are so changeable, our climate so variable, the soil of so many qualities, consistencies, and component parts, that unless the cultivator brings to bear upon his operations the utmost amount of wisdom, skill, and practical ability, no good results can ever be anticipated. A man

may be placed in a situation where he may obtain tolerable results, and be looked upon as "a good average gardener." In the course of time he is placed in another situation not far distant, and the result is very different—everything goes wrong, nothing goes right. For the first year or two he lays the entire blame upon his unfortunate predecessor; but when the tale will no longer "tell" in that way, he blames every one and everything, never for one moment dreaming that probably the greater part of the whole matter rests with himself. Let him, however, apply himself with perseverance and assiduity to consider all the differences that exist between the two places he has filled, and the more he understands this and acts accordingly, the more will be the success he shall acquire. Nature is stubborn, and will have her own way if rebelled against; but let her be "coaxed" and humoured, and she is as docile and gentle as a lamb. The world was made for man, not man for the world; sin, however, abrogated and disannulled the whole of this, and now we stand in quite different relations the one to the other. The soil refuses to yield her crops without labour, toil, and trouble, and man is using the plough and spade in order to conquer and subdue her. How different, however, is this from national warfare, and nation conquering nation! The one is honourable and elevating, the other dishonouring and degrading to society, both in its social and national relations: the latter is generally—conquered once, conquered for ever; while the other is—conquer once, you must still be conquering, or in turn the vanquished will again become the vanquisher. To those who put their hands to the practice of horticulture, I would say, let their motto be "Excelsior;" be not content with the advantage gained to-day, but be ready on the morrow still to go forward, "conquering and to conquer." Let no false dreams of acquired popularity or practical reputation lull you to sleep, but study, strive, attempt, and accomplish, and your reward will be great.

We who form the present generation of gardeners have many advantages over our fathers of the past and former generations. Besides all our own experience, we also have the whole of theirs, by which we are enabled to accomplish greater things, and it may be with much less trouble, than they did. We therefore have no claim to all the glory of our accomplishments, but should rather revere and hallow their memories, giving to them their due share of honour for the great strides and achievements of modern horticulture.

I purpose, in a few papers, to lay before the readers of the 'Gardener' a concise practical and theoretical account of the propagation, culture, and management of the leading hardy fruits cultivated in Britain; and first of all I would treat of the

PEAR,

which should be propagated either by budding or grafting upon the Wild Pear stock, *Pyrus communis*, or any of the varieties used for perry, as well as the Quince stock. It is not uncommon to raise several of the English or common varieties by suckers and layers; these, however, often prove very gross and rank growers, not over productive, and never of high quality. Inarching has also been recommended; but the best, the easiest, and the most successful method is by grafting, of which I will give a detailed account by-and-by. The raising of new varieties is invariably accomplished through the medium of seedlings. Much care and judgment are requisite in order to obtain success in this department of horticulture. No doubt it is quite possible to obtain good and new varieties by simply saving seeds from a good *stock*, but it will be more chance than anything else if such is the result. He who wishes to succeed ought to select parents of the following good qualities, viz.: let one parent be a hardy, robustly-constituted, free-growing variety, and this I would recommend as the female; the other should have all, or as many of the good qualities—such as size, shape, flavour, and appearance—as it is possible to obtain in one kind. This important point settled, much care and watchfulness will be necessary to obtain blooms on both parents at the exact stage for operating upon. The female parent will require even more watching and care than the male, for there is the danger of self-fertilisation—fertilisation from others than the kind required, either by having the pollen carried upon the air, or upon the legs or proboscis of insects. To obviate the former of these risks, it will be necessary, as recommended by Mr Isaac Anderson—see Lindley's 'Theory of Horticulture,' page 491—"to divest the blooms to be operated on, not only of their anthers, but also of their corollas." And this I would recommend to be done *only* with very sharp scissors, used with much care, so as not to injure the pistil. To guard against the latter contingency, the best plan will be to remove all the blooms, save those wanted for the operation, from the branch or branches, to such an extent as will be covered by a handlight; these having been removed, watch with care until the pollen is beginning to ripen upon the male, and the female gives signs of susceptibility; then place a handlight over the female, filling up every crevice by the easiest means at command, so as to exclude the possible entrance of any insect. As soon as the flowers show signs of being ready, remove the light, and impregnate with a camel-hair pencil; after which, replace the glass, and remove it not until all danger of impregnation from exterior sources is over. It may be necessary also to

shade from the direct rays of the sun, as the confined air within the handlight may get over-heated, and burn flowers, leaves, and all. In place, however, of covering over the light, let a mat be placed in such a position as to keep off the sun, without retarding the light, which may be done in the following manner: Nail a mat, say, 2 feet above the light, and let it be extended, at an angle of 45° , to two stakes, placed 5 feet out in the border, which will answer admirably the end in view. This operation finished, the operator has years of anxiety before him ere the fruits of his labours will prove themselves good or bad. Notwithstanding, he will watch every stage from the present time till then as a faithful mother would her tender offspring. If, through the course of growth, any of these fruits should appear deformed in any way, remove them, as in all probability the seeds may not prove so good as those of their larger or better brethren. And further, I would recommend every one of them to receive support from the time they take their last swelling until they arrive at maturity, as I find from experience that all fruits, no matter of what sorts, swell from one-fourth to one-half larger when supported than if left to hang from the branch; and I am further convinced that the seeds also must share in the benefit, and consequently give stronger and healthier seedlings.

The fruit being ripe and gathered, remove the seeds with care. Various ways and times for sowing have been recommended, and each and all, I believe, has been followed with less or more success. Some have recommended the placing of the seeds in a phial amongst sand for one or two months, afterwards taking them out into paper and allowing them to remain there till the following autumn, when they should be sown—M. de Jonghe giving as his reason for this course that, “after remaining in this situation, . . . the skins of the seeds will acquire a consistence, and the kernel a firmness, that will enable it to vegetate with greater vigour when committed to the soil.” By this means, however, a year is lost, and a considerable amount of labour also, compared to the mode practised by that eminent pomologist, Mr Rivers, and with what success it is not necessary for me to say. His method will be found *in extenso* in the ‘Journal of the Horticultural Society,’ vol ix. beginning at page 292: I will, however, give the substance of it here. When the Pear-eating season begins he prepares 9-inch pots, filling them with two-thirds of loam to one-third of rotten manure, with a little sand; these are placed upon tiles, away in an open space not likely to be the haunt of slugs. The Pear with the desired seed being ready for use, he eats it, removes the pips one by one, and presses them down about an inch into the pot. Thereafter he writes a label bearing the parent names and date of

sowing, covers the pot with a slate to exclude vermin, and the operation is finished. Fifteen pips he considers sufficient for a 9-inch pot. In this way he proceeds until the pots for receiving the seed out of doors become frozen, when he has a few in the greenhouse for a like purpose, which he continues to sow in whenever the fruit is ripe. He has no particular season for sowing, but does so from October till May or June, as the case may be; but those seeds sown after March seldom vegetate till the following year. As soon as the seedlings appear on the surface of the soil he removes the slates from the top of the pot. Seedlings thus sown may remain in the pots for the season, when they ought to be planted out into rows, say 2 feet apart, as soon as they are ripe in the wood, which ought to be about the beginning of October. The course to be followed with regard to pruning is similar to that of a young tree of any sort, details for which shall follow hereafter. In all probability it will be five or six years before these will bear fruit. A year or two may be saved by removing a scion, if strong enough, the first year, and grafting it upon a stock of some age. Mr Rivers recommends them to be rind-grafted "upon old dwarf Pears without names, which may be bought at a cheap rate from the nursery."

Having thus treated of the raising of seedlings, I now come to speak of the stocks which are in use for grafting, which I have already named. The nature of the soil and climate has much to do with the stock which ought to be used. M. Du Breuil, in his extensive experiments with the chalky soils about Rouen, found that the Wild Pear suited best for grafting, and that the Quince was almost or altogether useless. Dr Lindley has said that for light and loamy soils the Quince was best, but for chalky soils the Wild Pear. I am further of opinion that in wet cold localities, such as we have in the west of Scotland, the Quince, although shorter-lived, is the best stock for the Pear as a standard, or I should rather say for pyramids. I have invariably noticed in such localities as I have indicated that standard Pears, when grafted upon the Wild Pear, in the course of time permeated the soil to such a depth that the roots got imbedded into the cold wet subsoil to such an extent that the result was canker, the dwarfing and cracking of the fruit, and latterly partial or entire failure of crops. By using the Quince many of these things are obviated. It not being of such a rank habit of growth as a stock, the roots run and keep more on the surface, and therefore are not nearly so liable to canker and decay. And further, these bear fruit much earlier, are earlier ripe in the season, and the tree is handsomer and more ornamental. The fruit, no doubt, is scarcely so large, but what it wants in this is made up by flavour, colour, and appearance. The

Quince of Portugal is the best variety for a stock, as it is the strongest and most robust of the family. The easiest and perhaps the best method to obtain stocks of the Quince is to layer the young shoots in winter, and allow no more than one bud to appear out of the soil. In all probability this bud will form a shoot about 3 feet the first season, which ought to be cut down in winter to about 6 inches, having one or two inches more removed before the graft is inserted. It is advisable to have as little of this stock above the ground as possible; and the reason for this is, that the Pear being of quicker growth than the Quince, in the course of a few years the scion would be much thicker than the stock, which, besides being unsightly, might be liable to be broken over by a storm. By having the union as near the soil as possible, both of these contingencies are guarded against. Although it has been said that this stock is short-lived if used for the Pear, yet nevertheless it is not so much so as most people are led to believe, if care and skill are exercised in the management of the trees. Mr R. Thompson in his admirable work, 'The Gardener's Assistant,' says, "It has been said that the Pear on the Quince stock is short-lived. It cannot, of course, be expected to live so long as when worked upon the Pear stock, a more natural condition; yet we can point out trees on Quince stocks that have existed forty years and are yet vigorous, exhibiting no symptoms of decay." Here is evidence enough that trees upon the Quince have lived, thriven, and still continue to do so, for as long as any reasonable man can expect.

Where the Pear is intended to be grafted upon the wild or perry Pears, the seeds ought to be sown in a piece of good rich garden-soil in rows about 18 inches apart. As soon as the seedlings have arrived at the height of 3 or 4 inches, it will be necessary to thin them out to about 9 inches from plant to plant, those left being as near a size as possible. Transplanting those taken up, they may be planted about the same distance from each other, and have a thorough watering to settle the soil about them, as well as good waterings whenever the weather is very dry. When the seedlings are about a year and a half old—that is to say, about the end of October of the year after sowing—they ought to be transplanted into well-prepared rich soil, where they ought to get as much room as possible, say 4 feet between the rows and 2 feet in the rows, and let the rows, if possible, run north and south, so as to receive the maximum benefit from the heat of the sun. Those seedlings which were transplanted when a few inches high, will probably neither be so strong nor so good as those which were allowed to remain where sown; therefore they will in all probability require to be cut back in proportion to their strength—that is to say, weak ones furthest, stronger ones not so much. If, however, they are

as good and strong as the others probably will be which remained in the seed-rows, it will be quite unnecessary to cut them, as they will make more roots, and consequently be stronger stocks than if cut. After another year's growth these should again be transplanted as before, but still not cut unless where the side-shoots may be pinched if long straight stems are wanted for grafting standards upon. After a year's growth here, they will be ready for grafting, and ought not to be transplanted, as, by leaving them thus the year before grafting, they will have more root-energy to support the scion than if they were struggling to overcome the check consequent upon transplantation. Let a tree or plant be removed with as much care as possible, it still receives a considerable check, and it takes at the very least one year's good treatment to enable it to recover itself; so that a young stock to be operated upon, if removed the year of grafting, would not be in nearly such good condition for receiving and nourishing a scion as if it were fully established and in a vigorous condition, for the check sustained by being headed over is of itself sufficient without receiving the double blow all at once. Any time from the middle of November to the middle or end of January—but December is probably the best time—the stocks to be grafted upon ought to be cut back to within 4 or 6 inches of the place where the graft is intended to be placed. This will depend entirely upon what use the future tree is intended for. If as a standard for either open garden or wall, the height of cutting ought to vary from 3 to 6 feet. The general height for standards is about 3 feet when grafted, so that if cut at 3 feet now, and 6 inches removed when the graft is inserted, the height of the grafted tree will be about 3 feet. Standards for walls—or riders, as they are commonly called—are from 5 to 6 feet stem, and consequently will require a year or two longer before being ready for grafting, but will, when ready, require to be cut over about the desired length and at the usual time, and have 4 or 6 inches more removed when grafting season comes. Those intended for grafting as dwarfs for the open garden ought to be cut at about 15 inches from the ground, while those intended for the walls ought to be cut back to about 10 or 12 inches, reducing them the same as the others at the grafting season. It is better to have for a dwarf standard at least 1 foot of clean stem, as, if any shorter, the certainty is that in the course of a few years the under branches will cumber the soil, to the total or partial expulsion of hoe and spade, a state of matters very teasing to the gardener. In the matter, however, of wall-trees, the case is different, as we want the under branches of the trees within about 1 foot or 15 inches of the soil; consequently we must have a stem not more than 10 inches in height, so as to be able to get the under branches at the proper place.

JAMES M'MILLAN.

(To be continued.)

FRUIT-CULTURE.

(Continued from page 382 of 1868.)

THE VINE.

THERE is perhaps no plant the culture of which occupies so much of the attention of horticultural writers as the Vine. The soil in which it grows, the air in which it breathes, the system of training that should be adopted, whether its roots should have artificial heat or not, and many other questions connected with its culture, are discussed from week to week in all the horticultural periodicals of the day ; and, in the face of all this, there are those who doubt if any real progress is being made after all. Our own opinion is, that while as good, and probably better, Grapes were grown twenty-five years ago in isolated cases, good Grape-growing is much more common now than then ; but that much has yet to be learned, every one who, like ourselves, visits many of the “odd corners” of the country, will be ready to admit. The extent to which Grape-culture has attained amongst amateurs who do not keep regular gardeners exceeds belief ; and we are bound to state, as the result of our own observation, that their success will bear a very fair comparison with that of those possessing more practical skill.

In the papers we hope to give on the subject of Vine-culture, we shall confine ourselves to what we think likely to have practical value, and leave what is merely speculative to others. Our opinion is, that the day is not distant when Britain will export Grapes largely to Paris, Vienna, Berlin, St Petersburg, and other important cities on the continent of Europe, as well as America. This, we know, takes place to some extent already, but not to a thousandth part the extent it might do if proper arrangements were entered into for creating a demand by the extent and cheapness of the supply. In some of the fine dry loamy fields of the Lothians, within a mile of where we write, where coal and all needful appliances can be had cheap and near a station, where express trains can be had daily to all parts of Britain, excellent Grapes could be supplied by the ton, at such prices as would insure a rapid market for them both at home and abroad, from the beginning of December to the end of March, and leave a good profit on capital invested.

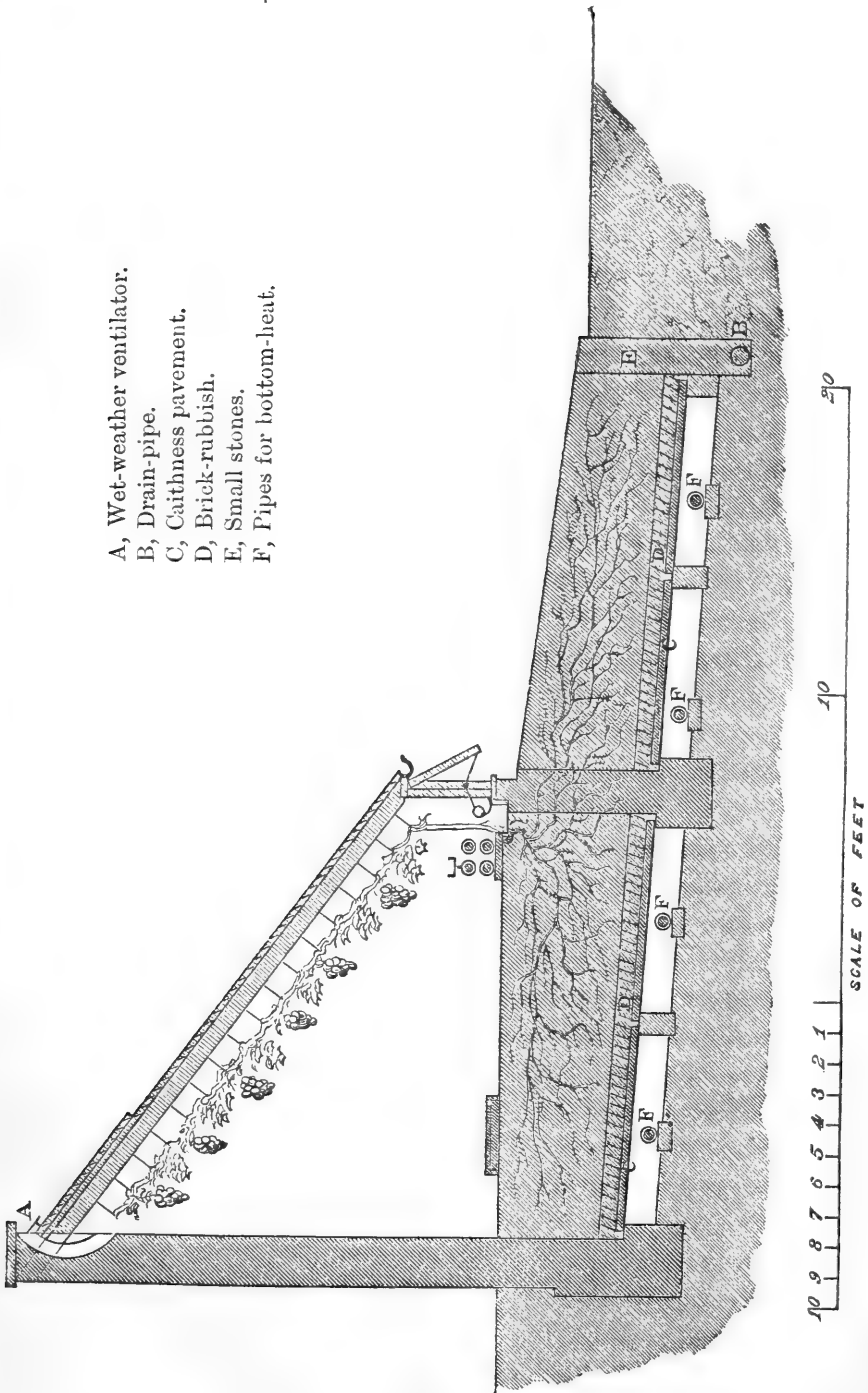
Before we close these papers, we may perhaps direct special attention to this aspect of Vine cultivation.

To facilitate reference, we shall treat the subject under its several heads, and commence with

THE VINERY.

While Grapes may be grown in any glass structure, there are certain forms most suitable for producing given results ; and if one of these is

FIG. 1.



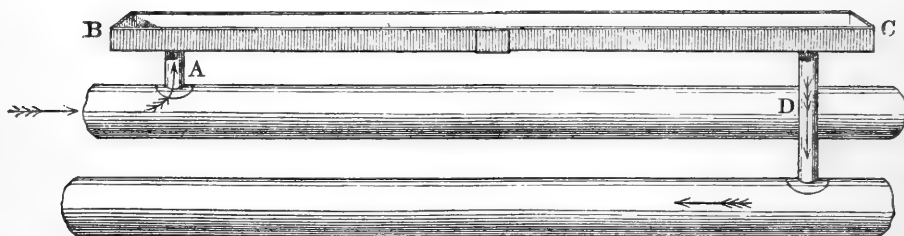
early Grapes, by which we mean Grapes ripe in March, April, and

May, there is no form so suitable as the lean-to, with a due southern aspect. It should be as light as possible—that is, the astragals and rafters should be relatively narrow, and the squares of glass wide, so as to admit as much of the genial influence of the sun during the dark days of winter as possible. It is a question simply of convenience what the size of the vinery may be.

Fig. 1 gives the size and shape of one of the early vineries here ; and had we built them, we would have made them both wider and loftier—not less than 15 feet wide, with a front sash of 2 feet, and the back wall 15 feet high—as we consider a large house relatively easier kept to a given temperature than a small one, while the same labour, in every respect, is incurred in connection with the latter as with the former, except in the thinning of the Grapes and a few other trifling matters, while the produce is much greater, nor is there much difference in the original cost ; therefore we urge that vineries should be made a good size.

The wires to which the Vines are to be tied should not be nearer the glass than 16 inches, so that a current of air may pass between the foliage and the glass in hot weather. The leaves should never come into actual contact with the glass ; for if they do, radiation from the glass during a clear cold night will freeze them, and cause them to turn yellow. There should be not less than four rows of 4-inch pipe round the front and ends of an early vinery. In addition, we recommend a steaming-tray over one of the pipes, to receive its supply of hot water from the flow-pipe, and empty itself into the return-pipe, as shown in fig. 2. This tray gives moisture to the air

FIG 2.



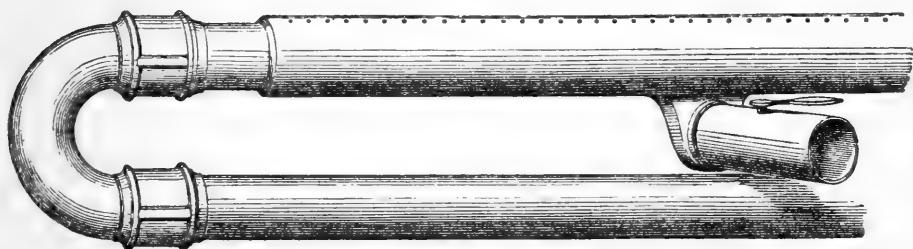
STEAMING-TRAY.

The water ascends into the tray from the flow-pipe at A, passes along to C, which may be 60 feet from A, and descends into the return-pipe at D.

of the vinery in the exact ratio that the pipes give heat ; for the hotter they become, the hotter the water in the tray becomes, and, consequently, it gives off more steam at the time when the hot pipes have a tendency to render it necessary. The difficulty of ventilating a vinery during severe weather in winter is well known to early forcers, and in order to meet this we have adopted the following method, shown in fig. 3 : We

placed a sheath of thin copper over a row of the front pipes, this sheath we connected with the external air by means of a pipe of the same material, 5 inches in diameter; the cold air presses in through this pipe into the sheath round the hot pipes, where it gets heated at once, and passes rapidly out of the upper side of the sheath, where it is pierced full of holes; this air escapes immediately under the steaming-tray, and being hot and dry, it absorbs what it requires of the moisture rising from the tray, and comes in contact with the leaves just in that state as to heat and moisture most conducive to their wellbeing. The wet-weather ventilators are kept open about an inch

FIG. 3.



HOT-AIR VENTILATOR.

in the dullest weather, and even during the night, to let the hot exhausted air escape; so that a constant change of air goes on even during the severest frost—a matter of no small importance if the foliage is to be kept in health and good flavour, and colour given to the fruit.

So much for the vinery. We now come to consider

THE BORDER.

In some parts of the country, including that from which we write, the soil of any ordinary field used for agricultural purposes, if brought together to the depth of 2 feet, would grow good average crops of Grapes if a fair portion of ordinary farmyard manure were added to it, as we hope to show when we come to treat of “Grape-growing for the Million.” Meantime we advise that where possible a friable calcareous loam from an old pasture should be procured—taken not more than 3 inches deep from the surface—and stacked for six months. This soil broken up, while dry, by means of a spade or fork, and mixed with half a cwt. of ground bones to the cart-load as a permanent manure, some charred earth or wood, including wood-ashes, one cart to ten of old lime-rubbish, and the same proportion of rather fresh horse-droppings, will form a first-rate border for Vines to grow and fruit in. If the locality is wet, and the loam on the verge of being what is designated clayey, let the proportion of lime-rubbish and charred clay or earth be

in excess of the proportions given. This compost should never be touched except when dry, and specially it should not be wheeled in to form the border, unless in dry, and, if possible, frosty weather.

We have come to the conclusion that it would be well if all Vine-borders could be formed above the surface-level of the surrounding ground. If this could be done, we should hear less of sour soil, rotten roots, and shanked Grapes. As we are treating specially, at this time, of early forcing, we must come to the vexed question of bottom-heat or no bottom-heat; and we throw in our lot with those who are the advocates of bottom-heat for Vine-roots when forced early, who certainly have common sense on their side; and we advise its application from beneath the border, and not from the surface, as some are doing at the present day, believing, as we do, that its application to the surface of the border will prove of little or no practical value.

Recent writers have given dismal pictures of the roasting of the roots of the Vine over or in hot chambers heated to some imaginary temperature; and no doubt it would be possible to injure the roots of Vines by such appliances as hot-water pipes in chambers under them. This is one thing; the necessity for doing so is quite another. We started an early vinery on the first of last month. An underground thermometer showed the temperature of the border to be 42° at a depth of 18 inches; we applied a very slow fire to the boiler, that heats four rows of 4-inch pipe, buried under a stratum of brickbats and drain-tiles of various sizes, and radiating in all directions from the hot pipes. In six days the temperature rose to 60° when the surface of the border was covered with dry leaves; on the outside border these leaves were thatched with straw to throw off the rain, and they will keep the heat from radiating from the surface of the border. The water was then shut off from the bottom pipes—nor will it be applied again above once for the same period till the Grapes are ripe; yet by this gentle and short application of it, which cannot possibly injure the roots of the Vine, the temperature of the soil is raised to something like the temperature of the earth at the season when the Vine would, in its native country, be in a state of active growth. If applied in the way and to the extent here described, whether under rubble, as we have it here, or under stone pavement, as shown in the woodcut, nothing but benefit to the Vine can be the result. If the constant firing of the bottom-heat pipes be persisted in during the greater part of the forcing season, that evil consequences will be the result is every way probable; but there is no necessity for it, especially if the surface of the border be covered with leaves as described, so as to prevent radiation.

W. THOMSON.

(To be continued.)

NOTES ON HARDY HERBACEOUS PLANTS.

LOBELIA.

THIS subject, it may be observed, is barely consistent with the title of these Notes. Only a very limited number of known species of *Lobelia* may strictly be termed hardy; but it is necessary once for all to state that the writer, in pursuance of the object of these papers, will bring under the notice of the readers of the 'Gardener' all such plants as he can recommend as available and proper for the adornment of the mixed border, rockwork, and other similar uses, whether, as in the case of *Lobelia*, they require protection more or less in winter, or are quite hardy.

Lobelia is rather an extensive family, composed of a few annual and biennial, and a large number of perennial herbaceous, and a few ever-green suffruticose species. It is liberally distributed over many of the warmer parts of the globe, but in Europe and Northern Asia representatives are few and rare. Britain is favoured with two species, *L. urens* and *L. Dortmanna*; the former a very rare plant, having hitherto been found in one locality only—in Devon, near Axminster; and the other, being aquatic, and found in only a few of the lakes in the three great divisions of the Kingdom, may be regarded as a merely local plant in this country. The reputation of the genus for ornamental purposes is deservedly very high; there is indeed little contained in it that may be condemned as weedy or uninteresting, while of many species and varieties it may be correctly said they are unsurpassed for brilliancy of colouring and adaptability to every style of flower-gardening, whether rustic or refined, ribbon or panel, masses of one colour or mixtures of many colours, on any scale, small or great, from the humble patch in the cottager's mixed bed or border, to the thousands that adorn the gardens of the rich and luxurious. But until very recently little has been heard and less seen of *Lobelias* in this country, except in so far as the justly popular *L. erinus* and its several excellent varieties, or the pretty annual *L. gracilis* or *campanulata*, have brought them into view. It is refreshing, however, to observe that the tide of popular favour is now fairly setting in the direction of the old-fashioned and long-neglected tall herbaceous species, whose striking aspect and sparkling colours are unfamiliar to the majority of young gardeners, but will be pleasingly remembered, either as pot or border plants, by those who can carry their memories back for twenty-five or thirty years. *L. cardinalis*, with scarlet flowers, and *L. syphylitica*, with light-blue or purple flowers, are both very old inhabitants of British gardens, and both are from North America. *L. fulgens* and *L. splendens*,

both from Mexico, are more recent introductions, with scarlet flowers and dark-coloured foliage, but are less hardy in constitution than the two first-named species. Then came the purple *speciosa*, a hybrid of Scotch origin between *syphylitica* and *cardinalis*. *L. ignea*, more recent than either of the foregoing, was brought out as a species, but has little if any specific character about it; it is very near *L. fulgens* in appearance, and would pass very well as a variety of that species, with rather weak straggling habit, but most brilliant scarlet flowers and intense dark foliage. *L. fulgens* v. *St Clair* is a comparatively recent variety, of excellent merits, upright and stately in growth; the leaves are rendered somewhat hoary by numerous whitish hairs that are thickly studded over the dark surface, and the flowers are brilliant scarlet in dense spikes. *L. syphylitica* v. *alba* is a beautiful sort, but rare and difficult to keep, which has been occasionally seen, but always limited, and in the hands of only one grower here and there in the country. Occasionally, too, was seen in the past a dwarf variety of *L. cardinalis*, named *nana*, of the same colour as the species. But the foregoing list contains the sum of the colours to be found in this section of *Lobelia* till within three or four years ago, when the species, yielding to hybridisation under the hands of Messrs Bull of Chelsea and Henderson of St John's Wood, are now giving us numerous progeny, with colours previously unheard of among tall *Lobelias*. There are carmine, cerise, claret, magenta, pink, ruby, with many shades of purple and scarlet and crimson, while these are varied still more in certain varieties with white. There is also in some sorts an increase in the size of the individual flowers, and there is greater variety in habit. Some varieties are dwarf and diffuse, others tall and strict; and in this respect there will soon, perhaps, be such diversity of character as will render *Lobelias* of this section adaptable to very general use in bedding-out. But there are other tall herbaceous *Lobelias* worth having, both on account of their own intrinsic merits, and the probable good results that would accrue from infusing their blood with that of species and varieties already in our possession. *L. cœlestis*, about 2 or 3 feet high, with clear azure-blue flowers, from N. America; *L. amœna*, about 3 feet high, with *L. Kalmii*, a foot and a half high, both blue-flowered, and from N. America; and *L. verbascifolia*, a large-growing tomentose-leaved sort with red flowers, from Nepal, are species of considerable beauty. Our own indigenous *L. urens* is no mean plant under good cultivation, and might, if crossed with the showier sorts, introduce a hardier race. *L. Dortmanna* is indispensable where ponds, lakes, or sluggish streams must be furnished with select or choice vegetation; its pale-blue flowers drooping in slender racemes on the surface of the water,

are very pleasing. As subjects for the mixed border, nothing can surpass these tall perennial Lobelias; and it is astonishing that the species and the older varieties should ever have been allowed to fall into disuse for that purpose, for under good cultivation they are striking, bold, and handsome. Their cultivation is a very simple matter. From the combined influences of cold and wet the soft succulent underground stems are liable to perish in winter if left out of doors where they grow, unprotected; protection of some sort is therefore necessary. Some leave them where they made their growth till spring, protecting them with a mound of coal-ashes or any other available protecting materials; others lift them as soon as flowering is finished, and stow them away in coal-ashes or dry sand in sheds, under stages of cool plant-houses or in cold frames; and a friend of the writer, who was very successful in the cultivation of Lobelias, kept his roots in tubs of water under cover to prevent freezing; but the water, on account of its liability to become putrid, required frequent renewal, a circumstance, doubtless, that prevented my friend from making converts to this pickle-tub method. My own experience is in favour of lifting the roots in autumn immediately after flowering is finished, dividing them, and potting the offsets singly in the smallest pots they can be got into, afterwards plunging the pots to the rims in coal-ashes in a cold frame. Liberal airing in favourable weather and protection during frost is all that they will need of attention and labour till the early months of spring. To do them thoroughly well, they must have an early start, and for this purpose a hot-bed, in which a temperature ranging from 60° to 65° can be kept up, should be in readiness to receive them by the second week in February. Examine and trim the plants, and transfer them to the hot-bed, not plunging them, but merely setting them on a bed of ashes. They will soon begin to grow, and will require shifting and constant attention to watering, but as yet very carefully. Continue to shift as required by the progress they make up till the end of April, when they should get their final shift and be transferred to a cold frame, kept close till they are inured to it, and afterwards carefully hardened off for planting out in the end of May. They are not particular as to kind of soil, but are very much so as to the quality. Loam and peat and well-decayed stable manure in nearly equal parts, and abundance of grit of some sort to keep it open and porous, is a compost in which these Lobelias delight in pots, and the beds or borders that they are designed to occupy out of doors cannot possibly be made too rich for them. They are very impatient of drought when making their growth, and will absorb almost any quantity of water; it should not therefore be spared.

THE KITCHEN-GARDEN.

No. I.

It may possibly appear to some a work of supererogation to write a systematic series of articles on kitchen-gardening at this advanced period in the history of horticulture. And while confessing that, if the choice of a subject rested entirely with the writer, vegetable culture would not be his theme on the present occasion—more especially as it is one which to some extent he has attempted to discuss some years ago in the ‘Scottish Gardener,’ and with which effort some of his readers may be already acquainted—he would much prefer a sort of roving commission for his pen, than to be tied down to what many may, no doubt, look upon as a sober set of subjects—Cabbages, Onions, and Cauliflowers. This is not said, however, under the slightest impression that the kitchen-garden is an unimportant department ; far from it. And if any who have carefully watched the course of gardening literature for the last quarter of a century, and perhaps particularly of the present time, were called upon to say which of the various branches of gardening has attracted the least share of the attention of those who devote their spare moments to gardening literature, the vegetable department could scarcely fail to be fixed upon. All the outs and ins connected with the cultivation of flowering and exotic plants, the propagation and arrangement of bedding plants, and of all sorts of florists’ flowers ; the cultivation of Pines, Grapes, and Peaches, and other tender and hardy fruits—have been discussed and written about until they are freely talked of as threadbare subjects. Amongst these various subjects some have found hobbies to canter on till they are out of wind, and have been compared to Tam o’ Shanter’s mare, having “fient a tail to shake at all.” There are Rose men, Orchid men, Camellia men, flower-garden men, orchard-house men, and ground-vinery men, and men of all sorts ; but where shall we look for an Onion, or a Cabbage, or Cauliflower man ?

There is no fault to be found with all this devotedness and enthusiasm in all or any of these branches. Enthusiasm has done much, nearly all, for practical gardening. Enthusiasts are the men for discovery and dash, as well as unflagging perseverance. They are the Dr Livingstones of horticulture, and could ill be spared by the growing hosts who follow in their footsteps ; and perhaps the gardening press would miss them most of all. In fact, if we are to have a press at all, these are indispensable men, and so are their subjects. This, however, is no reason why the vegetable department should be slighted, or treated with the cold shoulder. It cannot be that the kitchen-garden can fairly be considered either the least important or the easiest to

manage or learn. It takes in a far wider range of society than any other department. Neither the prince nor the peasant can neglect it with impunity. Most gardeners find the kitchen their most ticklish latitude, one from which demands ever come with the most relentless steadiness, which cannot be shirked on any pretence. And he who can satisfy these demands every day in the year, has reason to congratulate himself on being up to the mark, in a department through which as much trouble is as likely to arise as any other with which he has to do.

Perhaps there has been less real progress in kitchen-gardening within the last twenty-five years than in fruit or plant culture. Certain it is that what are now termed the "old-school men" were not behind the generation which is following them in substantial kitchen-gardening, while it would be difficult to say so much of them in some other departments. I do not know whether my experience corresponds with that of other gardeners who have passed a good many young gardeners—so to speak—through their hands, but I find the majority quite as deficient in this department as in any other, or even more so. There are plenty of worthy young men who, were they called upon to grow a few genera of plants in pots, or to get up a few thousand bedding plants, would do so with credit to themselves. But call upon them to serve the kitchen, or subdivide a few acres of a kitchen-garden into allotment for the proper proportion of the different vegetables, and crop these with a proper selection, and in a manner and at a time which would secure a proper supply for the season, and they would find themselves set fast. There cannot be a greater mistake on the part of young men who, as soon as their two or three years of apprenticeship is over, indulge a ceaseless hankering to get into houses where forcing and plant-growing are carried on, before they have made themselves conversant with the details of a well-managed kitchen-garden.

If these remarks are applicable to professional aspirants, they are in another sense far more applicable to many an amateur who is nowadays leaving the crowded city chambers to live in retirement, and in the enjoyment of a garden in the country. While a vast deal is being written for their instruction in fruit-culture and flower-culture, that department which affects their comfort more constantly is not so carefully brought before them. For these especially we hope to prove useful and instructive in the series of articles we have undertaken to write—a task which we are a little encouraged to go on with from the fact that in the leading journal the comparative skill of gardeners in vegetable culture north and south of the Tweed is being discussed somewhat warmly. Without the slightest wish to enter on the discussion

referred to, it may be said in passing that a good deal of what is being advanced must be the result of a one-sided knowledge : it never answers in such matters to measure our neighbour's corn with our own bushel.

There is no intention of extending these papers by attempting to say all that can be said on any given subject : what shall be aimed at is to say what is likely to be of service to the greatest number and variety of readers ; and especially to those owners of small gardens who, in great measure, superintend their garden operations, will we aim at being useful.

In commencing to write a series of articles on any department of gardening, perhaps the most difficult thing to decide is what form or arrangement the matter to be written should be put. This is felt and confessed on the present occasion, and it is hoped that the arrangement decided upon will meet with approval. At first it was designed to say something of laying out, or forming vegetable gardens of various sizes and characters, and to treat of the best way of improving unsuitable soils, such as heavy clay and light and shallow sandy soils. But the conclusion come to is, to take up the catalogue of vegetables in general cultivation, and treat of them alphabetically. And following this order, we come first to a very important vegetable, namely—

ASPARAGUS (A. OFFICINALIS).

Although there are few vegetables which contain less nutriment than this, it is nevertheless one of the most esteemed products of the kitchen-garden. This is easily accounted for by its being so exceedingly mild and pleasant to the taste ; so much is it so, that its culinary preparation is generally of the most plain and simple character, so difficult is it considered to improve upon its delicate flavour. No wonder, then, that it has been long cultivated and esteemed by all who can afford to grow it. It was greatly prized by the Romans and the Greeks. Cato and Columella have spoken strongly in its praise ; and Pliny, in speaking of it, mentions some specimens of it which grew in a shady district near Ravenna, three heads of which weighed a pound—a standard sufficiently high for modern growers. But probably it may have been a different variety from the common Asparagus which is found growing wild on the sea-shores of England.

Although the natural habitat of this vegetable is a poor and sandy soil, it is necessary, in cultivating it to perfection, to grow it in a very highly manured and deeply cultivated soil, because its good quality depends on a quick and strong succulent growth. At the same time, it never succeeds well for any length of time on a tenacious cold soil, and succeeds best on a deep light loam. Hence it is found to thrive so well on the deep light loams of Deptford, Battersea, and other

places round London, where it is grown in large quantities for the supply of the metropolitan markets. No doubt one of the chief reasons, apart from its delicate flavour, why this vegetable is so highly esteemed, is, that it comes into use in the open ground at a season when the finer vegetables are not plentiful, and is available daily, till Green Peas take its place, as a first-class vegetable. It is also one of the few vegetables which are most pliable to force for winter use, so that, with very ordinary convenience, it can be sent to table for several months of the year.

Asparagus is raised from seed, and the best time to sow is the end of March or beginning of April. A light dry piece of ground should be selected, and trenched to the depth of 2 feet. A heavy dressing of well-rotted manure should be worked in while the operation of trenching is going on. The manure should not be applied so much in the bottom of the trench as in the top 15 inches of the soil, as the plants are best transplanted when the year-old manure at the bottom of the trench is not so much required. The surface of the ground should be well pulverised with the spade, and finally raked tolerably fine with an iron rake when it is in readiness for the seed. The seed is then sown in drills, 14 inches apart and about 3 inches deep; and as good strong healthy crowns the first year are the object, the seed should be sown thinly, certainly not thicker than one seed every inch. In covering the seed the surface is left rather fine, as the young plants are exceedingly slender when they first make their appearance above the ground. In light sandy soils, such as are desirable for raising young Asparagus, it not unfrequently happens that a crop of annual weeds comes up before the Asparagus itself; and on this account a stake should be directly inserted at the ends of each row, so that a line can be stretched exactly over them, and the Dutch hoe applied between, without any danger of injuring the young plants. This is much more speedy, and even safer, than hand-weeding the whole surface.

Throughout the summer the Dutch hoe must be kept going amongst the young crop, for the purpose of keeping the surface loose and clean. In autumn, when the tops have become brown and ripe, they should be cut over close to the ground, and a slight covering of half-decayed leaves spread over the surface before severe frosts set in.

Some are in the habit of allowing seedling Asparagus to make two years' growth before it is transplanted, but it is best to transplant the spring after it is sown. When allowed to remain two years in the seedling rows, it is scarcely possible to lift it without severely damaging its long fleshy roots; whereas, when only one year old, it can be moved with its roots almost entire, and it makes growths as strong as two-year-old seedlings.

HINTS FOR AMATEURS.—JANUARY.

THE experience from the past dry season will be profitable to many of us. It should teach us to be, as far as we can, provided against difficulties to be met in future. We have seen many gardens during the past season entirely parched up, and the produce not sufficient to pay for the labour; at other places we have seen vegetables, fruits, and flowers finer than perhaps they ever were on the same places before. In the latter places, means in some cases were more scanty than in the places where failures were everywhere apparent; different methods of cultivation being the cause of success or disappointment. The examples given by the racy writer on the Rose in past numbers are good illustrations of what can be done by perseverance,—in one case an enthusiastic Rose-grower is most successful in cultivating the queen of flowers where he was told that they would not exist; another case of a cottager exchanging a quantity of gravel, stones, &c., for a “pond,” which was converted into a productive little garden, in which fruits and flowers were successfully cultivated. We know a number of cottage gardens which a few years ago produced little more than weeds of the worst kind; but there may be seen in them, every season, flowers and vegetables which would do credit to the leading professional men in the country. Emulation has sprung up among the inhabitants of villas, who some years ago had scarcely a bit of gravel to tread on, but are now far advanced in the arts of gardening, and have in their gardens fruits and flowers of the choicest kinds, and their grounds decorated in the most tasteful manner. Obstacles are overcome which formerly were considered folly to contend with. The same applies to professionals, who are yearly surmounting difficulties. Fruits are cultivated where soil and climate were considered altogether against them, by lifting the roots up to receive the warmth of the sun, freeing them from stagnant and unhealthy moisture, keeping off long naked roots and securing bunches of fibres instead, which give fruit-buds and matured wood instead of wild watery growth, which causes so much cutting that the trees become cankered and worthless. We were this autumn struck with the excellent Apples and Pears in the gardens at Tynningham, East Lothian, which were more like fine fruit we have seen in the south of England. Though the soil and climate seem to be congenial, there was something more to which success is to be attributed. The trees are lifted, or otherwise attended to, before rank growth has its own way; besides, there is no doing and undoing, no checking, then applying strong manures (a system practised by some, giving a great deal of labour and destroying the constitution of the trees), but fresh clean soil, and only when necessary. When trees are in such productive con-

dition, they require little attention in the way of either summer or autumn pruning. The action of sun and air on the raised soil about the roots, and the free exposure of the branches, by avoiding crowding, are some of the agents which secure fine fruit. Doing everything necessary at the proper time will save much labour and disappointment.

What "hints" we offer to those who have had little experience in the ordinary management of small gardens will be based on experience which has been attended by success, what we can glean from successful growers, and by corresponding with successful professional men.

We may expect changeable weather in January; and when stormy and unsuitable for outdoor operations, let attention be directed towards securing plenty of necessities for the coming season—such as stakes, pegs, shreds, &c. &c.—all cleaning over plants, preparing of soils, examining for wireworm the turfs which are to be used for potting Pinks, Carnations, &c. There is abundance of work for wet weather in most gardens, however small, and if attended to at this season, the advantage gained will be immense. There is nothing gained by keeping men employed at ground-work in wet weather, though much mischief may be done. All old soil which may have been in use for potting, &c., may be looked over, clearing out any stones, roots, sticks, &c.; this we find very useful when sowing small seeds early in the season. The drills can be filled in with this when the soil of the garden may not be in favourable condition. At the same time, we strongly object to sowing small seeds on a damp sour surface. When soils are very heavy, it is almost indispensable to use dry fine soil for covering seeds. We have seen charcoal-dust used with great success. Though heavy strong soils are unwieldy, and require more manual labour, yet in skilful hands the finest crops are grown on such soils. They require treatment of their own.

Where Peas, Beans, Parsnips, Onions, &c., are to be sown about the end of February or early in March, the ridges may be broken down in frosty weather, and freely turned back and forward with the digging-fork till the whole is well pulverised. Early Peas may, if required, be sown about the middle of the month in boxes, small pots, turfs, &c. It is an object, when planting them out, to have the roots as entire as possible, and they are generally turned out undisturbed. In pots the roots should not be allowed to be bound, which would only give a weakly stunted crop. We prefer boxes with some roughish leaf-mould, or the fibry part of turf well parted and placed in bottom, then a little finer soil. The Peas are then sown thickly, and covered with any soil which will allow the tops to grow through easily. Peas or Beans sown

under protection now require all the air and light possible to keep them sturdy. Peas, Beans, and Spinach may be sown to succeed the autumn sowing. Let the drills be exposed to the sun for a few hours, and cover them with any kind of soil, finishing them up in a dry state, which is of great importance to all kinds of seed. Cauliflower, Lettuce, and other things under protection, will require abundance of air when possible. No dead leaves should appear, and the surface-soil should be kept stirred, and free from anything unhealthy. Keep up supplies of Seakale, Rhubarb, and Chicory by placing small quantities in heat every fortnight or so: the demand will regulate the time. Prince Albert Rhubarb will be giving the supply now, but Victoria can be brought on at this season. Mustard and Cress can be had in fine condition by sowing a small quantity in heat every week in small pans or boxes. We have known this grown successfully in dwelling-houses. It requires to be well exposed to fresh air after it is grown an inch or so, otherwise the flavour will be insipid. Radishes and Early Horn Carrots may be sown on a gentle hotbed if wanted early, using about 8 inches of soil over the bed, and rather fine and sandy on the surface. A warm border, sheltered by a wall, will do for early Carrots and Radishes. Protection with litter in frosty weather will be required; but where frames and other means are limited, it is well to leave such early sowing alone. Potatoes may be placed on small pieces of turf, and covered with a little soil, and sprung in a gentle-growing temperature preparatory for planting in beds or under suitable protection. Hotbeds may be made for Cucumbers, and the seed sown in small pots, using warm soil, and no water given till the plants are up and growing. If hotbeds are to be made, plenty of stable-manure is necessary; other manure will do, but stable is generally preferred. Let it be thrown up till rankness is reduced before the bed is made; but it need not be wasted, as rank manure may be made up, and then a depth of sweetened material placed on the surface: the whole made firm and smooth, then place the frame. Over the manure place a layer of turf, grassy side down, if it can be had. A ridge of soil may be placed across the bed, and an inch or two over the turfs. The bed is then ready when the heat is right. Cucumbers do well in a temperature of 70° by day and 65° by night, increasing 10° or 15° with sun. Protect Parsley with hoops and mats, &c., so that it can be picked in severe weather. Broccolis will require to be looked to frequently, and protected as formerly advised. Mint and other herbs may be lifted and potted, or planted in boxes, and grown in a little heat if wanted. All other ground operations should be well forward by this time, after such an open season. What is left undone, let it be attended to when-

ever weather is suitable. The advice given for these operations, for the last two months, applies to this and next month.

Fruit-trees, whether on walls or standards, if covered with moss, should be gone over with a piece of hoop or similar instrument, and all the bark cleaned, but care taken not to injure it. Lime-wash may then be applied, which will destroy moss and insects ; or lime dusted on after rain will save time. The same application may be of great service to Gooseberries and Currants. Some take away the soil round the collars of the bushes annually, and replace it with fresh earth, to prevent the ravages of caterpillar. We use a mulching of decayed manure after scraping away the soil, and cover it over with a little clean soil. The roots should not be interfered with in process of digging. Trees on walls which may be infested with Scale should be well scraped, and a washing of Gishurst's Compound given, about 4 oz. to the gallon of water. All other necessary work connected with hardy fruit-trees left undone should be attended to when weather is fine, as formerly advised. Train Raspberries either to stakes by tying them upright, or in rows 8 inches or so apart. Keep them about 4 or 5 feet high, according to strength. Clear all suckers away, and plant up blanks, or make fresh plantations in deep, rich, cool soil. Rasps do well with plenty of mulching. Wires fastened in lines to upright stakes make neat training-fences.

Shrubs planted in autumn, and not already mulched with decayed leaves, short, half-rotten manure, or similar material, should be attended to now ; this keeps out frost in winter, and drought in summer. Earth placed over the mulching will make all look tidy. Turf-laying and all other improvements should be done whenever weather permits. If heavy falls of snow occur, Conifera and other valuable trees will require to be shaken clear so far as can be done. Many trees are ruined from not being looked to in time, as they soon break down under their load of snow. All bulbs require some kind of protection from frost, which saves the flowers. In cold pits, frames, or green-houses, little can be done at present further than attending to cleanliness, keeping everything as dry as possible ; not allowing any plant to suffer at the root, however, but giving enough water, when necessary, to moisten the whole ball. Fresh air, and keeping these structures cool, is greatly in their favour ; keeping out frost and cutting winds, however. Those who only have windows can only move them away when frosty, and place them in the light and air when weather is fine. Pinks, Auriculas, and similar plants under protection, require to be kept very dry, and have abundance of fresh air. No damp among them should be allowed. Stir the surfaces of the pots. Keep worms out. Coal-ashes make a good bottom for standing them on. Pinks

and Pansies in the open ground may be protected with hoops and mats, which can be uncovered when weather is fine. If frames, &c., get covered thickly with snow, it will afford good protection; but when thaw sets in, it may be swept off as speedily as possible. M. T.



A GARDENER'S HOLIDAY.

THE climate of North Wales, as may be judged from its adjoining the Channel, is mild and moist. Ferns and mosses are very abundant; all the smaller species of *Asplenium* are plentiful, such as *Viride*, *Septentrionale*, *Adiantum nigrum*, *Trichomanes*, *Ruta muraria*, and even *Lanceolatum*. Curious enough, almost all these species we have gathered on Arthur's Seat. The common *Polypody* is as common as grass; in one instance we observed the whole roof of a house densely covered with it. *Ceterach* and *Cystopteris* are easily procurable, and even *Adiantum Capillis veneris*, but this we did not see. The Dwarf Furze was in full flower in September, which is peculiar, since we are accustomed to see the Whins in Scotland in bloom before Easter; but they are two different species. The common *Cotoneaster* is indigenous to the Welsh coast; bushels of the ripe berries could now be gathered. We backed out of Wales *viâ* Chester again, past orchards laden with apples, a small bright red variety being exceedingly abundant. Our route homewards through Manchester, Sheffield, Barnsley, and Leeds has become notorious of late by coal-pit and railway disasters, which might compare in horrible interest with Tam O'Shanter's nocturnal ride from Ayr to Alloway Kirk, only the disasters which marked the various points of Tam's route were microscopic compared to our modern horrors, as were Tam's mode of locomotion—

“Well mounted on his grey mare Meg”—

compared to a modern train; but the philosopher would probably credit the whole to the “march of improvement.” Passing through what is, perhaps, the longest tunnel in England, on the London and York railway, which took 8 minutes, the train soon arrives at Wortley station, close on Wortley Hall, the seat of Lord Wharnccliffe. The park and grounds occupy the slope of a rising-ground facing the east, and the whole place has an air of comfort, compactness, and neatness. From the sloping nature of the ground the two main ranges of glass are made up with the houses on various levels, in order to face the south. Hambro' Grapes are fine in berry and finish, quite equal to those we saw at

Garston. Peach-trees were also in first-rate order. Two houses of Queen Pines were magnificent examples of good culture ; in one house they were in part planted out ; all were sturdy, broad-leaved, thick-necked fellows, bound to throw grand fruits next spring and summer. Six ranges of lean-to pits, substantially built and well heated, are a feature here ; in one of them an immense crop of Tomatoes was colouring, the plants trained to a trellis close to the glass. Others were occupied with succession Pines, Figs in pots, bedding-stuff, &c. Here are also forced French Beans, Potatoes, and Strawberries. The Keens, Dr Hogg, and Sir Harry, upwards of 1000, were very fine plants for forcing. The position of Wortley is high and inland, the flower-garden was therefore over before our arrival. The design is neat and tasteful, and occupies a sunk position under the southern windows of the mansion. Two large plant-houses built of iron—a stove and greenhouse, some distance apart—are prominent features in this part of the grounds, and are both well stocked with the leading flowering and foliage plants. Mr Simpson has carried out many permanent improvements here since taking the management—such as remaking vine-borders, asphaltting the walks, building new vineries and fig-house. A plentiful supply of clean soft water has been laid on all over the garden during the past summer, by which, with the help of hose and hydrants, every inch of ground and every tree can be drenched at pleasure ; this is a boon to be envied, especially after the experience of the summer which has just passed. We have not space to particularise the many excellencies of this fine place, creditable to Mr Simpson's quiet ability, and gratifying to him in the enjoyment of his employer's appreciative encouragement.

What is now termed Wharncliffe Chace we suppose once formed part of the ancient Sherwood Forest, which also included the high ground around the tributaries of the Don. From here to the Dukeries, which also occupy part of the same famous ground, is a two hours' journey, so that Robin Hood must have had a pretty large hunting-field. Some idea of its intricacy and loneliness may yet be obtained by a walk through Clumber and Thoresby. We may suppose that Robin would be sorely puzzled were he to appear in the flesh and see the stately mansions which now preside over the scene, the scores of brick funnels vomiting forth coal-smoke, and also the famous gardens which have taken the place of the haunts of the wild-boar and fallow-deer.

Thoresby is in a transition state, fast becoming transformed into one of the *points d'appui* of gardening. Supposing lines drawn all over the kingdom between the principal gardens, like the railways on Bradshaw's map, Thoresby would be one of the places dignified with capitals. Two years hence will be time enough to give a full report on this fine place. The mansion is yet to finish and the flower-

garden to begin ; what is already done has been well done, and on a grand scale. The vineries are the most spacious we have ever seen for lean-tos, and the crops, especially Muscats, extra fine. Figs are in grand health, as also stove and greenhouse plants. The Standard Mignonette for winter, grown in low span-pits, were models ; and in numbers were the Dalechampia in fine flower, and magnificent specimens of the true Celosia aurea. Mr Henderson as well as Mr Simpson has caught the sub-tropical fever. One bed filled with Echeveria, we must confess, was striking. The grotesque-looking *E. metallica* which filled the centre in great luxuriance was very defiant, we had nearly said beautiful ; and a chain pattern round the same of *E. glauca*, filled in with the choice tricolor Pelargoniums, was certainly unique and pretty. Pines are also well done here—some planted out, but the most in pots ; and it is high praise to say that they trod hard on the heels of those at Wortley. The Thoresby Queen is a most striking and distinct Pine, and ought to be more generally grown. It has the short spreading sturdy habit of the Common Queen, but densely covered with meal, which makes it very conspicuous in a collection. It swells a large pyramidal fruit, is more juicy than the Common Queen, and quite as free from stringiness, but not so rich as that variety. Indeed, we think it bears the same relation to the Common Queen as the Golden Champion bears to the Muscat Grape—they ought to be eaten together. The Thoresby Queen must certainly be more grown when better known : its habit and appearance at once recommend it.

The country for miles around Barnsley has the appearance of suffering from a slow and continued earthquake, from the sinking of old pit-workings : the roads are sunk and twisted into ugly gradients, the stone-fences are reft, and bowing hither and thither ; even houses bow to the general disturbance.

A peep for a few hours into the Leeds Exhibition, a *multum in parvo*, was the finish to our fortnight's holiday of sight-seeing—it was the grand finale or transfiguration scene. It was a study for a season instead of for a few hours. The cases of miniatures of historical characters set in gold, with the names engraven, contributed by the Duke of Buccleuch, were particularly interesting to us. The central hall was disfigured with a lot of poor scrubby dusty Palms, Altingias, and foliage-plants, which made one feel an itching to get at them with an engine in sanitary indignation.

THE SQUIRE'S GARDENER.



NEW PLANTS OF THE PAST MONTH.

(Continued from p. 530 of 1868.)

It is always pleasant to note that just at the dullest season of the year, when of out-of-door flowers it may be truly said,

“Through all the long dark winter time
They mourn within their dreary cells,”

then is it the fitting time for some of the most magnificent of the Orchid family to appear in all their almost unrivalled splendour—the very aristocracy of the kingdom of flowers. Especially did this appear to be noticeable at the meeting of the Floral Committee on the 17th of November, when some grand Orchids put in appearance, several of them being new, and of great beauty. Messrs Veitch & Sons of Chelsea received first-class certificates for the following: for *Pleione Reichenbachiana*, a beautiful and perfectly distinct species of the *Pleione* group of *Calogynes*, from Moulmein—the sepals rosy lilac, the lip white, and marked on the disc with straight lines of deep magenta purple:—Mr Bateman has described the *Pleiones* as “the autumn Crocuses of the Himalaya Mountains,” as they did not produce flowers and leaves at the same time:—for *Phaius irroratus*, a hybrid obtained by Mr Dominy, and resulting from a cross between *Calanthe vestita alba* and *Phaius grandiflorus*, taking the habit and growth of the latter,—the erect spike, when fully developed, being from 2 to 3 feet in length: the flowers differ from those of the *Phaius* in having the spur of the *Calanthe*, the throat being also less deep, and having less of the trumpet shape than in the case of the *Phaius*: colour, creamy white tinged with pink, thus differing from either parent; the flowers also being further apart on the spike than in the case of the *Phaius*:—for *Oncidium cucullatum Phalænopsis*, a very pretty variety, differing from the ordinary form of *O. cucullatum* in having the labellum pure white instead of pink, richly spotted at the base; and for *Oncidium Forbesii*, with strong, dark-brown flowers and a yellow mottled edge, introduced some years ago, but since lost sight of, and now shown in fine condition. It was also exhibited by Mr B. S. Williams of Holloway, under the name of *O. crispum marginatum*, and received the same award. A first-class certificate was likewise awarded to Mr B. S. Williams for *Oncidium holochrysum*, with rich, bright yellow flowers,—a small but very fine species.

In addition to what has been here stated, Messrs Veitch & Sons had fine examples of the splendid *Cattleya Exoniensis*, and the equally valuable and beautiful *Cattleya Dominiana*—both illustrations of Mr Dominy’s successful efforts at hybridising: the finely-coloured *Calanthe*

Veitchii; a richly-coloured form of *Sophranites grandiflora*, and a noble example of *Vanda cœrulea*, the spike of flowers of which would consist of twenty-six blossoms when all were expanded, and, according to Mr Bateman, a longer spike than was ever exhibited before. A very fine-cut spike of the same magnificent species was also sent by Mr Thomson of Dalkeith: the tints of the flowers sent by Mr Thomson were decidedly better than those furnished by Messrs Veitch & Sons, but some Orchid-growers assert that this is regulated more by the age of the flowers than from any special mode of treatment adopted by the cultivator. As other growers of equal authority attach so much importance to methods of treatment, I have the pleasure to give the following extract from Mr Thomson's letter, which accompanied the spikes of *Vanda cœrulea*, *V. suavis*, and some fine varieties of *V. tricolor*: "The plants were grown in a large airy house, glazed with ground glass, and only shaded during hot summer weather. The plants were growing in wooden baskets, in sphagnum and charcoal, and but rarely watered overhead, and occupied a wooden stage over a tank of cold water; and generally, as far as the varieties of *Vanda tricolor* and *V. suavis* were concerned, they flowered three times a-year, the *Vanda cœrulea* only once. The plant of *V. cœrulea*, from which the spike sent was taken, was 18 inches in height, and all its leaves, even to the bottom of the plant, were quite fresh." Mr Thomson further stated that the plant of *Vanda cœrulea* produced three spikes of flowers, the largest bearing twenty-five blooms.

Of Ferns, the following received first-class certificates:—*Pteris serulata corymbifera*, a very handsome crested variety, from Mr B. S. Williams; and to *Gymnogramma laucheana corymbifera*, with the terminal crests, as in the case of the foregoing, gathered in the form of a corymb.

The same award was made to Mr Green, gardener to W. W. Saunders, Esq., Reigate, for a well-grown pyramidal-shaped plant of a Cape species of *Asparagus* named *decumbens*, it being so distinguished as representing a light and handsome decorative plant.

Some more of the new seedling form of *Coleus* raised at the gardens of the Royal Horticultural Society at Chiswick by Mr Bause were staged, and first-class certificates were awarded to the following:—Duke of Edinburgh, the leaf surface reddish bronzy orange, slightly veined with purple, and slight margin of yellow, the under side of the leaves tinged with purple; Prince of Wales, upper surface of the leaves reddish orange bronze, with dark lines and blotches; Prince Arthur, the leaves parti-coloured, with dark maroon yellow, and irregularly distributed upon the surface; Princess Beatrice, bright greenish-yellow leaves, veined with dark claret; Her Majesty, reddish bronze dashed with

purple and yellow, and yellow edge ; and Albert Victor, the centre of the leaf dark orange red, with dark crimson markings and blotchings of yellow. On the 10th of December last, the foregoing, with others similarly certificated, but all representing the fine golden-leaved strain obtained mainly from *C. Blumei* and *C. Verschaffeltii*, were submitted to public auction by Mr J. C. Stevens, and somewhat widely distributed, as no purchaser appeared to take more than two kinds. The most promising, Princess Royal, was taken by Mr Turner, Slough, at 25 guineas. One or two others fetched 10 to 15 guineas, while the remainder only realised smaller sums. The proceeds of the sale, some £75, is not much in excess of the sum paid by Messrs Veitch and Son last spring for *Coleus Bausei* alone, which fetched some £58. It is now universally acknowledged that the prices paid for some of the first batch of hybrids were far beyond their actual value ; and it is not too much to say that among the horticultural records of the year just closed must be placed that outbreak which may well be designated the *Coleus mania*.

First-class certificates were also awarded to Mr C. Turner, Slough, for the following Variegated Zonal Pelargoniums : Mrs Headley, very finely coloured, and excellent habit ; Miss Rutter, with rich high-coloured markings ; and Mademoiselle C. Nilsson, a pleasing soft-looking variety. In addition Mr Turner had examples of Hayes Rival, Mr Hugh Berners, Grandmaster, Senior Warden, and Mr Rutter. The plants were of unusual size, and splendidly grown ; and the awards made were intended by the Floral Committee to stamp the particular kinds as eminently adapted for autumn and winter decoration. This is the proper function of a majority of these fine Variegated Pelargoniums, as their beautiful leaves are flowers and foliage in one, and that too at a comparatively barren season, when flowering-stuff is scarce. I hope some of the readers of the 'Gardener' will be induced to turn their attention to the cultivation of the Variegated Zonal Pelargonium, as a plant almost unrivalled for winter decoration when the grand leaves are finely developed. Let any one so disposed obtain Mr Peter Grieve's excellent little book on the Variegated Zonal Pelargonium, as, apart from the mass of extremely useful and interesting information it contains as to the history of this tribe of plants, the cultural directions contained therein are of the utmost value to all who make a fancy of this exceedingly attractive plant.

R. D.



STATICE PROFUSA.

THE *Statice* family is well worthy of more attention than is generally bestowed on it. Many of the varieties are extremely useful for greenhouse and conservatory decoration during the autumn months, when blooming plants are rather scarce. They are also very useful for sitting-room stands and vases, more especially the one which my present object is to bring under the notice of your readers.

We have no fear of being called in question by any one who is acquainted with the extreme usefulness of *Statice profusa* when we say it is one of the most useful pot-plants in cultivation, fully justifying the name it bears by yielding an enormous profusion of flowers. An individual plant will continue in bloom from July to November in a cool greenhouse, and by having plants in different stages of growth there is no difficulty in having it in bloom throughout the year. It can be grown in greenhouse temperature, but to grow it quickly into large plants, an intermediate temperature suits it better during the spring months. It also strikes freely from cuttings placed in a gentle bottom-heat in July or August; they will root in four or five weeks. When well rooted, pot them, if strong cuttings, into 4-inch pots. The compost which suits them best is two parts loam, one part leaf-mould, one part peat, and one part silver sand. If large plants are wanted quickly, they should be grown in the coolest part of the stove all winter, where they will have a temperature of 55° or 60°, keeping them near the glass. They will require a shift early in February into 8-inch pots, using the same soil, only somewhat rougher, with the addition of a little charcoal and half-inch bones. In these pots they will make fine flowering-plants, and yield dense heads of bloom from 18 inches to 2 feet across. If wanted for late autumn blooming, the first flower-spikes must be pinched off as they appear; these, however, generally yield the finest heads of bloom. After they have been potted, grow them in a temperature of 60° during the spring months, bedewing them overhead morning and evening. A slight bottom-heat will materially assist them in making a rapid and vigorous growth, but the latter is by no means indispensable. As they throw up their flower-spikes they should be hardened off, and ultimately placed in a light airy house, when they form beautiful objects amongst autumn flowering-plants. When intermixed with a collection of Zonal Geraniums the combination is very pleasing and effective. When the flowering season is past, remove the flower-spikes and winter them in the greenhouse, keeping them rather dry at the root. In spring they will want repotting. Reduce the balls, and pot them in the same sized pots, or in a size larger; but the size of

plant required must regulate the size of pot into which they are shifted. Place them in an intermediate temperature. A slight bottom-heat will assist them to start more freely. When the pots are well filled with roots, give them frequent waterings with weak liquid manure. This will materially assist the size and character of the flowers and duration of bloom. They are very subject to green-fly at all times, and fumigation with tobacco-paper must be resorted to. Red-spider also attacks them in dry hot summers, but a few washings with the syringe will rid them of this pest. It has also been planted out in summer, and has succeeded perfectly. To all those who have much to do in the way of decoration with pot-plants we would strongly recommend it.

DOWN SOUTH.



SOMETHING ABOUT THE CHRYSANTHEMUM.

No apology is necessary for a reference to the Chrysanthemum at this season of the year. It is *par excellence* the popular flower of the autumn and winter months out of doors, if happily unmolested by frosts, most cheerful and acceptable in our gardens; while indoors, who could do justice to such a magnificent display as that made by that master of Chrysanthemum culture, Mr John Salter of the Versailles Nursery, Hammersmith, London? In his winter-garden is to be seen in the month of November, at their greatest perfection of beauty, a grand exhibition of varieties of this valuable winter plant. By the appropriate use of a few simple elements—some pieces of rock, mosses, variegated and ornamental, and other plants, &c., and a large quantity of these Chrysanthemums—are thus displayed forms which enchant the eye and gladden the heart; pleasant aspects of beauty in nature mingling together that have a peculiar gratification when nipping winds and biting frosts are about their appointed tasks, in their own fashion and appointed way working destruction and death, but which are destined to be, ere long, the precursor of the birth of new and beautiful forms in the pleasant spring-time.

My object is to give notes on some of the best forms of the Chrysanthemum as seen here, both large-flowering and pompones, as they are termed, and to attempt as far as possible some general arrangement of colours, though in regard to some flowers this were almost impossible, so imperceptibly does one shade of colour seem to glide into and blend with another. One thing is, however, quite certain, that within the past few years a wonderful advance has been made towards the attainment of brightness and distinctness of colour in the flowers, and with

this a corresponding advance in fulness, and towards perfect development.

Of the deeper-coloured flowers that may well be termed crimson, there were Cardinal Wiseman, bright reddish crimson, a fine hue of colour ; Crimson Velvet, a very richly-coloured flower, of a bright dark-crimson hue ; Dr Sharpe, crimson-magenta, a fine reflexed flower ; Julia Lagravere, a small but showy flower, which should be in every collection for its bright hue of crimson ; Lord Clyde, bright glowing crimson, a small but attractive flower ; Prince Alfred, rosy crimson, a splendid flower, which richly deserves to be grown ; and Progne, a brilliant hue of amaranth, striking, and very showy. Of purple and violet shades the following are well worthy notice : Lord Derby, dark purple, very fine ; Fingal, rosy violet, also fine ; Hereward, purple, but when fully incurved presenting a silvery appearance ; Mr Murray, violet rose, a fine reflexed flower ; and Ossian, rosy purple, very large and full. Chestnut and bronzy orange shades may be said to prevail in the Chrysanthemum ; of these some of the most striking were—Bronze Jardin des Plantes, bronzy orange, with yellow centre, a sport from the golden yellow flower of this name ; General Harding, Indian-red tinted with gold, very fine ; General Slade, a very showy flower in the same way, but distinct ; Golden Eagle, reddish chestnut tipped with orange, very fine ; John Salter, reddish cinnamon, with orange centre, a striking hue of colour ; Pio Nono, Indian-red, tipped with gold, fine and showy ; Rev. J. Dix, orange red, with pale centre, large and full ; Sir Stafford Carey, dark-brownish chestnut, a distinct and striking flower ; and Triomphe du Nord, pale reddish chestnut, very fine. Lilac flowers are found in Princess Beatrice, a very fine and striking variety, of a bright deep silver-lilac hue ; Empress Eugenie, delicate rosy-lilac ; and Venus, lilac-peach, a very fine incurved flower. Shades of rose and blush can be found in Enamel, delicate blush-white ; Mrs Huffington, a very beautiful delicate-tipped flower ; Her Majesty, silvery-blush, very fine indeed ; Compactum, silvery-peach, distinct, and very pretty ; Lady Talfourd, delicate rosy-lilac, very fine ; Novelty, blush, a very fine and full flower, requiring good cultivation to bring out its full beauty ; and Princess Marie, a pretty rose-coloured early-blooming variety. Flowers of shades of yellow comprise some splendid kinds—such as Guernsey Nuggett, clear primrose-yellow, very fine ; Cloth-of-Gold, an old but very showy flower ; Gloria Mundi, bright golden-yellow, very showy ; Golden Beverley, deep canary, very fine indeed ; and Jardin des Plantes, rich golden-yellow, very fine and showy. White flowers comprise some beautiful things—such as Miss Marechaux, pure white, very fine indeed ; Princess of Teck, pure white,

large, and very fine ; Dido, sulphur-white, free-blooming, and showy ; Ion, pure white, fine ; Mrs George Rundle, pure white, a medium-sized flower, symmetrical, and extra fine ; Princess of Wales, pearly-white, extra fine, large, and full ; and White Christine, a very fine flower, tinged with lavender when opening, but changing to pure white.

The pompon-flowering kinds comprise some very pretty and striking kinds, distinct in colour, and highly attractive. Of yellow and orange shades there are—Autumna, buff, large, and good ; La Vogue, bright-gold, fine ; Aigle d'Or, yellow, an excellent variety ; and Golden Aurore, golden-yellow. Of dark flowers Bob is one of the best, bright crimson-brown, but somewhat late in blooming ; Brilliant, fiery crimson, very bright ; Louiset Tessier, crimson amaranth ; and Salamon, dark rosy-carmine. Of bronze and chestnut-coloured flowers there are—Satanella, orange-amber, fine ; Aurore Boreale, dark orange, very fine ; and brown Cedo Nulli. Lilac and rose-coloured flowers are generally represented by Graziella, blush-lilac ; Madame Bachaux, lilac ; Madame Pauline Deschamps, white and carmine, very pretty ; Mrs Dix, blush, bordered with rose, large and fine ; Rose d'Amour, clear rose ; and Rose Trevenna, rosy-blush, extra fine. Of white flowers there are—Madame Fould, cream-white, small, but very pretty and of fine form ; Mademoiselle Marthe, white, dwarf-growing ; and white Trevenna, a fine sport from the rose-coloured variety.

The foregoing are worthy attention, as furnishing some of the very finest kinds both for exhibition and conservatory decoration. There are yet the Anemone-flowered and the new Japanese varieties, but any notice of them must be deferred for a future paper. Quo.



NOTES OF NEW AND BEAUTIFUL PLANTS SEEN RE- CENTLY IN MESSRS VEITCH'S NURSERY, KING'S ROAD, CHELSEA.

CROTON VEITCHII, being sent out now. C. Hookerii, to come out in two years. C. Maxima, to come out this year. C. Hillii, bronze and red, to come out this year. C. tricolor, pretty. C. Wysemania has a fine long yellow leaf, looks beautiful as a standard.

Pandanus Veitchii, fine white-and-green striped.

Dracæna Moorii, a fine large variety to come out this year. D. magnifica, a grand variety, to come out in two years. D. Chelsonii, to come out this year. D. M'Lezia, a very dark variety.

Lomaria bella, a very beautiful crested Fern, somewhat resembling L.

Gibbii—a *Davallia*, not yet named, from Borneo, a very handsome Fern. *Marattia Cooperii*, a very distinct Fern. *Davallia hemiptera*, also pretty.

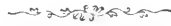
Araucaria elegans, a pretty plant and hardy.

Hedera fimbriata, a pretty pink greenhouse plant. *Thyborina acuminata* covers a greenhouse wall with pretty flowers like *Erica aristata*. A very neat-growing plant from Japan is *Retinospora filicoides*.

Adiantum Farleyensis is a Fern with beautifully-cut leaves.

Amongst many beautiful Orchids the following struck us as worthy of note: *Catleya exoniensis*, flowers large, colours purple, yellow, and white. A hybrid *Cypripedium* between *villosum* and *barbatum*, very distinct. A hybrid between *Calanthe vestita alba* and *Phagus grandiflora*, besides which we saw many other hybrids not yet bloomed. *Aerides Huttonii* is pink, self-coloured, and very pretty.

These are all noteworthy plants that may with advantage be added to any collection.

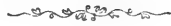


YELLOW PEACHES.

IN "Notes on New Varieties of Fruits" which appeared in last month's 'Gardener,' Mr Shortt includes Dr Hogg and à Bec among yellow-fleshed Peaches, which is a mistake. I have grown both of these; the former I got from Mr Rivers, and they are both of them white-fleshed. Dr Hogg is one of the handsomest Peaches I ever saw, being very large and highly coloured, and the flesh sprightly and deliciously flavoured; indeed, taking size and flavour into consideration, I do not know any other sort to equal it. It ripens with me in the beginning of August.

I do not agree with Mr Shortt in his estimate of the Royal Ascot Grape, which I have also grown. I think it a first-rate variety, and a valuable addition to our collections.

J. G. B.



LIVERPOOL CHRYSANTHEMUM AND FRUIT SHOW.

THIS exhibition took place in St George's Hall on the 25th and 26th of November last, and was, by impartial and competent judges, considered the most splendid winter display of fruit and flowers ever seen. The Chrysanthemums, whether as regarded the size of the individual blooms or the magnificence of the specimens, were quite unique. Liverpool has made Chrysanthemum-growing a perfect specialty—so much so, that Mr Broome, the celebrated Chrysanthemum-grower of the Temple Gardens, London, pays an annual visit to Liverpool on the occasion of these Shows to look after his laurels.

The exhibition of fruit was also of great excellence, and the whole arrangements reflected great credit on Mr Tyerman, the Curator of the Botanic Gardens, and Mr R. N. Kerr, seedsman, Basnett Street.

The judges were—*Fruit*: Mr Lees, gardener to the Earl of Haddington, and Mr Grey, gardener to the Earl of Zetland. *Plants and Flowers*: Mr Baines, Bowden; Mr Hibberd, Stoke Newington; Mr Broome, of the Temple Gardens, London. The following are their awards:—

Nine large-flowered Chrysanthemums (amateurs)—1. R. Houghton (Fleming, gardener); 2. J. E. Reynolds (Wilson, gardener); 3. R. Higgin, (Myers, gardener).

Six large-flowered Chrysanthemums—1. R. Houghton; 2. Mrs Holt (Newman, gardener); 3. J. E. Reynolds.

Three large-flowered Chrysanthemums—2. S. S. Parker (Lowndes, gardener).

One specimen large-flowered Chrysanthemum—1. J. E. Reynolds; 2. R. Houghton; 3. F. C. Braun (Dunbar, gardener); extra, J. M'Ardle (Airey, gardener).

Nine Pompone Chrysanthemums (amateurs)—1. R. Houghton; 2. J. E. Reynolds; 3. Lieut.-Colonel Wilson; extra, H. Pearce (Orr, gardener).

Six Pompone Chrysanthemums—1. J. M'Ardle; 2. H. Pearce; 3. Lieut.-Colonel Wilson; extra, P. M. Hannay (Shaw, gardener).

Three Pompone Chrysanthemums—1. J. E. Reynolds; 2. S. S. Parker, R. Higgin, and Major Blundell (Woollam, gardener); 3. J. M'Ardle, F. C. Braun, and H. Pearce.

One Pompone Chrysanthemum—1. R. Houghton and R. Higgin, equal; 2. J. E. Reynolds; 3. H. Pearce, S. S. Parker, and Major Blundell, equal.

One standard Chrysanthemum—1. J. M'Ardle; 2. J. E. Reynolds; 3. F. C. Braun; extra, J. M'Ardle.

One Pyramid Chrysanthemum—1. Lieut.-Colonel Wilson; 2. J. E. Reynolds; 3. F. C. Braun; extra, F. C. Braun.

Three Anemone-flowered Chrysanthemums—2. P. M. Hannay.

One Anemone-flowered Chrysanthemum—1. J. E. Reynolds; 2. P. M. Hannay.

Eighteen cut Blooms, large-flowered

Chrysanthemums—1. Mr Hobbs, Bristol; 2. S. H. Thompson (Foster, gardener); 3. J. Crosfield (Tiller, gardener).

Twelve cut Blooms, large-flowered Chrysanthemums—1. Mr Hobbs, Bristol; 2. S. H. Thompson and F. C. Braun, equal; 3. J. Crosfield.

Six cut Blooms, large-flowered Chrysanthemums—1. Mr Hobbs, Bristol; 2. J. G. Bateson (M'Hardy, gardener), and F. C. Braun, equal; 3. S. H. Thompson.

Six fringed Primulas—1. P. M. Hannay; 2. J. M'Ardle; 3. R. Higgin.

Four double Primulas—1. Mrs Zwilchenbart (Sorley, gardener); 2. J. M'Ardle.

Six stove and greenhouse Ferns—1. Mrs Hadwen (Armstrong, gardener); 2. R. Alison (Sinclair, gardener); 3. J. Mayer (Tharm, gardener).

Three stove and greenhouse Ferns—1. Mrs Hadwen; 2. R. Alison; 3. J. E. Reynolds.

One stove or greenhouse Fern—1. R. Alison; 2. Mrs Hadwen; 3. Major Blundell.

One Tree Fern—Earl of Derby (Freeman, gardener).

Two Standard Mignonettes—1. P. S. Boulton (Lamb, gardener); 2. S. S. Parker; 3. J. E. Reynolds.

Two Pots Mignonette—1. S. S. Parker; 2. P. S. Boulton.

Bouquet for the Hand (amateurs)—1. R. Houghton; 2. Earl of Derby; 3. Mr Eaves, Green Lane.

Bouquet for the Hand (nurserymen)—1. Mr Rylance, Town Green; 2. Mr Delamere, St John's Market; 2. Mr Ashcroft, West Derby.

Three Poinsettia Pulcherrima—1. F. C. Braun; 2. Colonel Thomson (Titherington, gardener); 3. J. Campbell (Everett, gardener).

Three Pans Early Roman Hyacinths—1. F. C. Braun; 2. Mrs Holt.

Three Euphorbia Jacquinæiflora—1. Earl of Derby; 2. J. Campbell; 3. Colonel Clay (Porteous, gardener).

Three Ornamental Fruited Plants—1. P. M. Hannay; 2. Earl of Derby; 3. S. H. Thompson.

Three Ornamental Foliage Plants—1. R. Alison; 2. Mrs Holt and H. Walker equal (Smith, gardener); 3. J. Campbell and Major Blundell equal.

Three Heaths, in flower—1. P. M. Hannay; 2. Earl of Derby.

One Palm—1. Earl of Derby; 2. J. Mayor; 3. Lieut.-Colonel Wilson; extra, J. Mayor.

Twelve Dishes Hardy Fruit (for nurserymen)—1. C. Rylance, Town Green; 2. R. Ashcroft, West Derby.

Twelve Dishes of Fruit—1. Mrs Zwilchenbart; 2. W. Jackson, M.P. (Woolley, gardener); 3. H. Littledale (Smith, gardener).

Six Dishes of Fruit—1. Earl of Derby; 2. R. Sneyd (Hill, gardener); 3. Mrs Zwilchenbart.

Three Pine-Apples—1. J. Dickson (Wallace, gardener); 2. Colonel Clay.

One Pine-Apple—1. H. Walker; 2. J. Dickson (Wallis, gardener); 3. Earl of Derby.

Two Bunches Black Hamburg Grapes—1. J. E. Reynolds; 2. H. Littledale; 3. W. Jackson, M.P.

Two Bunches Black Grapes—1. Mr Ellis Houlgrave, Seaforth; 2. H. Littledale; 3. H. Walker.

Two Bunches White Grapes (Muscat)—1. R. Sneyd (Hill, gardener); 2. J. A. Tinne (Forbes, gardener); 3. H. Walker.

Two Bunches White Grapes—1. H. Littledale T. Clarke, (Williamson, gardener); 3. Earl of Derby.

Eight Varieties Dessert Pears (six of a kind)—1. Mrs Harvey (Auchterlonie, gardener); 2. Mrs Zwilchenbart; 3. H. Pearce.

Four Varieties Dessert Pears (six of a kind)—1. S. S. Walker; 2. W. Tipping; 3. Mrs Zwilchenbart.

Best Dish Dessert Pears—1. E. Bates (Turner, gardener); 2. H. Thomson; 3. H. Walker.

Four Varieties Dessert Apples—1. H. Littledale; 2. E. Bates and S. S. Parker equal; 3. Rev. W. B. Botfield, Tifnal, (Barnett, gardener).

Best Dish Dessert Apples—1. S. S. Parker; 2. E. Bates; 3. S. H. Thompson.

Eight Varieties Culinary Apples—1. E. Bates; 2. Mrs Harvey; 3. Earl of Derby.

Four Varieties Culinary Apples—1. Major Blundell; 2. Colonel Thomson; 3. H. Pearce.

Best Dish Culinary Apples—1. Major Blundell; 2. R. L. Bolton (Thompson, gardener); 3. H. Pearce.

EXTRAS.

Basket of Plants—Mrs Holt.

Collection of Fruit—C. Rylance.

Rustic Stand of Flowers—1. R. Duke (Wade, gardener); 2. S. S. Parker.

Collection of Gourds—H. Duckworth (Jones, gardener).

Tynninghame Muscat Grapes—Mr Lees, Tynninghame.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THIS Society is to hold a grand international fruit and flower show in Edinburgh on the 8th and 9th of next September, when £500 will be offered in prizes; and there is reason to expect that, as a display of fine fruit, it will excel any exhibition that has preceded it, as nearly all the leading growers in England and Scotland will be exhibitors.

We also observe that Dundee is to have a fine exhibition on the 3d and 4th of the same month.

REVIEW.

THE GARDENER'S YEAR-BOOK, ALMANACK, AND DIRECTORY FOR 1869. By ROBERT HOGG, LL.D., F.L.S., &c. Journal of Horticulture Office, 171 Fleet Street, London.

This work becomes every year more useful and indispensable to all who take the remotest interest in horticultural pursuits, containing, as it does, descriptive lists of all the new flowers and fruits introduced during the year that has closed, monthly calendars containing sound practical directions for the Flower and Kitchen-Garden, tables bearing on all rural matters, and lists of all the principal seats of the nobility and gentry in the three Kingdoms, with the names of their gardeners and nearest post towns.



Notices to Correspondents.

[We deeply regret to be obliged to postpone many valuable communications.—Ed.]

C. G., TAY BANKS.—Your package reached us in good condition. The Dwarf Mammoth Celery is of first-rate quality; and as it stands long without running to seed, it must be a very valuable variety. The stalk of Brussels Sprout is of first-rate excellence in every respect.

J. F.—The questions you put to us involve so many considerations that we cannot give them a reply that would satisfy us, or be safe as a guide for you in the space at our command at this time. Vineries under one man's management may pay 50 per cent on their cost annually after the first year, while under another's they may not pay for the coal and labour. In these matters so much depends on proper management, that no estimate that would hold good in ten out of a hundred cases can be given. Watch what we shall have to say under the head of "Fruit Culture," and form your own estimates, or send us your address and we will write you privately.

YOUNG AMATEUR.—You say you were much annoyed last summer with red-spider on your Vines. It was a grand season for red-spider, being so hot and dry. Peel all the loose bark off your Vines. Wash them with soap and water and a hard brush, then paint them over with a mixture composed of 1 quart water, 1 gill tobacco-water, 3 ounces of sulphur, and a little clay to give the whole the consistency of paint: before you do this wash every part of the wood and glass of your Vinery with warm soap and water, and the brick or stone work with hot lime-wash; even remove an inch of the surface-soil of the inside border, and add fresh instead; do this after you have peeled the loose bark off your Vines, as many of the larvæ will be on the surface of the border. See that your borders do not suffer for want of water during the summer. Nothing induces attacks of red-spider more than a dry border and a dry hot atmosphere.

CONSTANT READER.—Plant your temporary Vines in the border out of their pots. You should fruit them two or three years to enable you to be merciful with the permanent ones, and this you cannot do if you keep them in pots.

SIR,—Could you or any of your readers of the 'Gardener' tell me if syringing trees with water on a frosty night would take off scale. A. G.

[We do not think it will. What say any of our readers?—ED.]

SIR,—I am desirous of obtaining, through the medium of your interesting periodical, some information as to the propagation of the Mulberry. A very fine old tree of this species grows in a courtyard at the back of the house I am now living in, and it usually bears a large crop of fruit, which this year has been peculiarly abundant and well ripened. Between thirty and forty years ago some half-dozen young trees were raised by cuttings from this Mulberry-tree, and these are now vigorous young trees, all growing in this neighbourhood; but, except in one instance, none of these have ever ripened any fruit. They are covered with small green Mulberries in the early summer, but these all fall off before they are half the proper size. I wish much to know the cause of this, and if I could raise any young plants with better success. I enclose my card, and I remain, Sir,

LANCASTER, November 3d, 1868.

A SUBSCRIBER.

[Will any of our correspondents reply to this communication?—ED.]

DEAR SIR,—I have a bed (on grass) 80 feet long and about 5 feet wide. I propose to plant it next year in the manner recommended by Mr Simpson, at page 495 of the last volume of the 'Gardener,' thus: The centre is to be two rows of Christine; on each side of it, one row of Variegated Alyssum, with an edging of Oxalis corniculata next the grass. Now I should be glad if Mr Simpson would inform me through your columns,

1. Whether he thinks the bed would be *too long* for the above combination.
2. *At what distance* in the row he plants the Oxalis? and also at what distance the line of Oxalis should be from the Alyssum?
3. Does Mr Simpson sow the Oxalis on bottom-heat?
4. Are *two* rows of Christine sufficient?

I remain, &c.,

L. M. N. R.

[Will Mr Simpson kindly reply to our correspondent?—ED.]

Would you choose me twenty-four select Herbaceous plants for exhibition—twelve for June and twelve for August?—I remain yours, A. CONSTANT READER.

W. L.

The following will suit you:—

June.—Statice latifolia, Aquilegia alpina, Campanula speciosa, Lilium candidum, Oenothera macrocarpa, Helenium Hooperii, Dictamnus of sorts, Ornithogalum pyramidale, Anthericum liliastrium, Dielytra spectabilis, Spiræa Aruncus, Lupinus polyphyllus.

August.—Campanula grandis, Tritoma Uvaria v. glaucescens, Achillea Eupatorium, Pentstemon speciosus, Statice eximea, Lythrum roseum superbum, Helianthus multiflorus fl. - pl., Lilium chalcedonicum, Eryngium amethystinum, Delphinium alopecuroides, Oenothera grandiflora, Chrysobactron Hookerii.



THE GARDENER.

FEBRUARY 1869.



THE ROSE.

(Continued from page 11.)

CHAPTER VII.—ARRANGEMENT.



VERY gardener must be an infidel—I am, and I glory in the fact—on the subject of infidelity. The proofs and the precepts of natural and revealed religion are brought so frequently and impressively before him, that he cannot believe in unbelief. He takes a seed, a bulb, a cutting (who made them?); he places them in the soil which is most congenial (who made it?); the seed germinates, the bulb spindles, the cutting strikes; he tends and waters (but who sends the former and the latter rain?); and the flower comes forth in glory. Does he say, with the proud Assyrian, “By the strength of my hand I have done it, and by my wisdom”? Does he not stand the rather, with a reverent wonder, to consider the Lilies (the Auratum, it may be, the glowing Amaryllid, or the lovely Eucharis, in robes pure and white as a martyr’s), until the very soul within him rises heavenward, and *Manus Tuæ fecerunt* is his psalm of praise?

And the truths of Revelation, the histories and the prophecies of the Older Testament, the miracles and parables of the New, are taught as constantly and as clearly to the gardener in his daily life. In our gardens always

“There is a book, who runs may read,
Which heavenly truth imparts;”

ever reminding us of that Eden wherein were all things pleasant to

the eye and good for food; of Gethsemane, and of that garden where our crucified Lord was laid. What is our love of flowers, our calm happiness in our gardens, but a dim recollection of our first home in Paradise, and a yearning for the Land of Promise! Here in the wilderness we love to reclaim these green spots from the Brier and Thorn; to fence and to cleanse; to plant and sow; to sit at eventide, when work is done, every man under his Vine and under his Fig-tree, with thankfulness and hope.

With hope, because these our gardens—scenes though they be of brightest beauty to our eyes, and sources of our purest joys—do not satisfy, are not meant to satisfy, our heart's desire. Perishable as we ourselves, for the grass withereth, the flower fadeth, they are, moreover, like all our handiwork, deformed by fault and flaw. Did you ever meet a gardener, who, however fair his ground, was absolutely content and pleased? Did you never hear "O si angulus ille!" from the lord of many fields? Is there not always a tree to be felled or a bed to be turfed? Does not somebody's chimney, or somebody's ploughed field, persist in obtruding its ugliness? Is there not ever some grand mistake to be remedied next summer? Alas! the florist never is, but always to be, blessed with a perfect garden; and to him, as to all mankind, perfect happiness is that "gay to-morrow of the mind, which never comes."

These imperfections and mistakes, of course, arise in our gardens mainly from our own ignorance or indolence; and as sterility, feebleness, and premature decay are caused not by tree, plant, weather, soil, but by wrong treatment, position, neglect; so all unsightly combinations, poverty or excess of objects brought together, rigidity, monotony, ungracefulness, originate not from the materials at our disposal, but from the manner in which we dispose them. And in this matter of *arrangement* we are at the present day conspicuously weak. Never was the gardener so rich in resources. Our collectors, hazarding their lives, and losing them in their work of love, have gained us treasures from every clime. Sadly, like some cemetery tree, does the beautiful Douglas Pine remind us of him whose name it bears, who sent it to adorn our homes, and who, searching for fresh prizes, perished miserably, falling into a pit dug by the Sandwich Islanders for the capture of wild bulls, and gored to death by one of them. The lovely Lycaste speaks to us sorrowfully of George Ure Skinner; and the most striking of the Marantas (*Veitchii*), the velvety *Begonia Pearcei*, with its golden flowers, his exquisite *Gymnostachium*, and splendid *Sanchezia*, of Richard Pearce,—both of whom died in their harness. These and others have amplified our shining stores, while our florists at home, by selection, culture, cross-breeding, and hybridising, have made admirable

improvements and large additions in every department of their art. The gardener, nevertheless, with all this wealth and skill, fails signally, in my eyes, as to the laying out of his garden. He fails, because he has to a great extent abandoned the English or natural system for the Italian and Geometrical, because he must have a sensational garden in spring, summer, and winter. His ancestors—poor floral fogies!—looked upon their gardens as quiet resting-places, fair scenes of refreshment and of health; and wandering amid these “haunts of ancient peace,” they loved the cool grot for contemplation made, or the sunny walk through the glossy evergreens, in which the throstle sang. They welcomed their flowers, as Nature sent them, in their seasons; they did not upbraid her, nor essay to wake her, when she slept her winter sleep; they forgave her deciduous trees. They followed her in all things as their teacher. They copied her lines, which were rarely straight, rarely angular; and her surfaces, which were rarely flat. Said to me a house-painter, whom I watched and praised as he was cleverly graining one of my doors in imitation of oak, “Well, sir, I must say I *do* think myself, that I’m following up Natur close,” and he ran his thumb-nail up a panel swiftly, as though he would catch her by the heel. So did they reproduce her graceful features. “I am now,” wrote the Czarina to Voltaire in the year 1772, “wildly in love with the English system of gardening, its waving lines and gentle declivities;” and so was all the gardening world. Sixty years later, in my own childhood, there were in the garden, before me as I write, and now little more than one subdivided flower-bed, those bowers and meandering walks—many a pleasant nook, where the aged might rest, young men and maidens sigh their love, and happy children play. Ah, what delicious facilities for “I spy” and for “hide-and-seek,” where now there is but scant concealment for the furtive hungry cat! What lookings into eyes, what approximations of lips, where now it would be bragian boldness to squeeze a body’s hand! I look through the window, and I see the place where, under drooping branches, we were kings and queens; where we entertained ambassadors with surreptitious food; where I was crowned with laurel (the only bit of reality) as the great poet of my day; and where, for brilliant service, I was knighted scores of times, on my return from India, with the handle of our garden-rake! I see the place—it was hidden behind the Yew-trees then—where we were so often shipwrecked upon “Desert Island,” and where my youngest sister would never be induced to have her face adequately grimed for the performance of man Friday! I look—but I can see no more! “A flood of thoughts comes gushing, and fills mine eyes with tears.” The playmates of my youth—where are they? O doleful memories! O blissful hopes! O

dreadful earthly darkness! O dazzling heavenly light! The morning cometh, as also the night.

But what do I see, as the mist clears? A garden which, like a thousand others, has obeyed the command of imperious Fashion,—Away with your borders, your mounds, and your clumps! Away with walks and with grottoes, nooks, corners, and light and shade. Down with your timber! To the rubbish-heap with your Lilacs, Laburnums, and blossoming trees! Stub, lay bare, level, and turf; then cover the whole by line and measure with a geometrical design. Do you require examples?—Copy your carpet, or the ornaments on your pork-pie. Then purchase or provide—for the spring, Bulbs by the sack; for the summer, Pelargoniums by the million; for the winter, baby Evergreens and infant Conifers—brought prematurely from *the nursery* into public life, like too many of our precocious children—by the waggon-load.

I am well aware that the geometrical system, especially when it is combined with terraces, staircases, balustrades, and edgings of stones, is very effective and appropriate around our palaces, castles, and other stately homes. For these it forms a beautiful floor and fringe. It prevents too sudden a transition from architecture to horticulture. With the pleasure-grounds around opening upon the park, and with the general landscape in the distance beyond, the amalgamation of art and nature is excellent. Nor do I deny for a moment that in all gardens, if introduced in modest and due proportion, it is the most becoming framework for our summer flowers; but my complaint is, that this giant Geometry has taken possession of our small gardens not as an ally, but as an autocrat—ejecting old tenants and dismissing old servants, like some heartless conceited heir, extruding them disdainfully, as the usurping cuckoo eggs from a sparrow's nest.

True art hides itself, and every man in laying out a garden should remember the precept, *Ars est celare artem*. He should, moreover, cause to be painted on his case of mathematical instruments, and printed largely on the cover of his sketch-book, those two lines, written by a true gardener and poet (must not every true gardener be a poet, though it may be of songs without words?):—

“He wins all points, who pleasingly confounds,
Surprises, varies, and conceals the bounds.”

But what, it may be asked, has all this to do with the Rosary? And I answer, Everything, because nowhere is the formal, monotonous, artificial system of arrangement more conspicuously rampant. A dead level, a set pattern, stars and garters generally encircling the Rose Temple! over which the disgusted Rose-trees invariably object to

grow. It looks like a dismal aviary from which the birds have flown ; but with a little bright paint and gilding externally, and a loud barrel-organ within, it might form a brilliant lucrative centre-piece for a merry-go-round at a fair.

When the Rose is grown for exhibition exclusively, the geometrical system in its simplest form, and minus the temple, is desirable, as being most convenient to him who purposely sacrifices beauty of arrangement as regards the general appearance, the *tout ensemble*, of his Rose-garden, that he may attain perfection as to size and colour in the individual flowers. He cannot afford space for numerous varieties, which, lovely, distinct, and indispensable in the general collection, are not suitable for the exhibition stage. He admires the Gallicas and Mosses, Chinas and Bourbons, earnestly, but has only room for these in his heart. He must have all his trees so disposed that they may be readily surveyed, approached, and handled. Specimens of the same variety must be planted together, that he may quickly compare and select. Time is most precious on the morning of a show, and returning to the boxes with a bloom in each hand and a couple between one's teeth, it is a sore hindrance to remember another tree at the furthest point of the Rosary which possibly carries the best bloom of all. Taste in arrangement consists with the exhibitor in the harmonious grouping of his Roses, not in the gracefulness of his ground or of his trees. He appeals not to the general public, but to the connoisseur ; not to the court, but to the judge.

In a Rose-garden not subject to any such restraint—not the drill-ground of our Queen's Body-Guard, but the holiday assemblage of her people—no formalism, no flatness, no monotonous repetition, should prevail. There should the Rose be seen in all her multiform phases of beauty. There should be beds of Roses, banks of Roses, bowers of Roses, hedges of Roses, edgings of Roses, pillars of Roses, fountains of Roses, vistas and alleys of the Rose. Now overhead and now at our feet, there they should creep and climb. New tints, new forms, new perfumes, should meet us at every turn. Here we come upon a bed of seedlings so full of interest and of hope. Here is the sunny spot where we gather, like Virgil's shepherd, the first Rose of spring, or

"Rosa quo locorum
Sera moretur,"

the last of autumn. Art is here as the meek admiring handmaid of Nature, gently smoothing her beautiful hair, checking only such growth as would weaken her flowing ringlets, but never daring to disfigure with shams and chignons—with pagodas, I mean, and such-like tea-garden trumpery. Art is here to obey, but not to dictate—to

work as one who counts such service its own reward and honour. If before the Fall, before the earth brought forth Brier or Thorn, man was put into a garden to dress it and to keep it, with his will and with his might must he labour now in that plot of ground where he fain would realise his fond idea of Eden. He must work hard, but only as one who copies some great masterpiece—not as one who designs, but restores. He must keep order, but only as replacing an arrangement which he has himself disturbed. Thus and thus only he may hope to make himself a garden

“Where order in variety we see,
And where, though all things differ, all agree.”

Were it my privilege to lay out an extensive Rose-garden, I should desire a piece of broken natural ground, surrounded on all sides but the south with sloping banks, on which evergreens above should screen and beautify by contrast the Roses blooming beneath; and in the centre I should have, at irregular intervals, mounds high enough to obstruct the view even of Arba, great among the Anakims, which would enable me to surprise, to vary, and to conceal, according to the golden rule which I have before quoted. On the level from which these mounds arose would be the beds and single specimens; at the corners my bowers and nooks. All the interior space not occupied by Roses should be turf—“nothing,” writes Lord Bacon, “is more pleasant to the eye than green grass kept finely shorn”—and this always broad enough for the easy operations of the mowing-machine, and for the trailing garments (they don’t trail now, but who can tell what ‘La Mode’ may ordain next summer?) of those bright visitors, the only beings upon earth more beautiful than the Rose itself. And who can be jealous? Who can grudge them the universal homage which even in the queenly presence they always claim and win? More than once, I must confess, has a remonstrance risen to my lips which I have not dared to utter. I remember sitting on a summer’s eve contemplating my Roses in the soft light of the setting sun, and in the society of a sentimental friend, more than ever sentimental because a daughter of the gods, divinely fair, had just left us for the house. We sat still and pensive, until at last I broke a long silence with the involuntary exclamation, “Aren’t they lovely?” “Lovely!” he replied; “I *hate* ’em. She called that Duc de Rohan a darling, and that Senna Tea Vaisse, or whatever his name is” (he knew it as well as I did), “a darling. I tell you what, old fellow, if either of these worthies could appear in the flesh, there is nothing in the world I should like so much as a *tête-à-tête* with him in a 24-foot ring. I flatter myself that I

could favour him with a facer, which he couldn't obtain in France. As for that General Jacqueminot, shouldn't I like to meet him in action," here he pulled his mustache fiercely, "and to roll him over on Rupert?"—his charger. I bade him light a weed, and hope, but he didn't seem to relish hoping. Towards the end of the next summer he came to see me again, with the daughter of the gods in his brougham, and on the opposite side, in the lap of its nurse, a new "duck," far dearer to his bride than any Rosebud on earth.

Although the inner walks should be grass, there must be an outer promenade of gravel, smooth and dry for the thinnest boots, when the turf is damp with rain or dew, and when the queen wears her diamonds of purest water, as in the days of Mary and Anna.

I would have the approaches to a Rosary made purposely obscure and narrow, that the visitor may come with a sudden gladness and wonder upon the glowing scene, as the traveller by rail emerges from the dark tunnel into the brightness of day and a fair landscape; or as some dejected whist-player, at the extremity of wretched cards, finds the ace, king, and queen of trumps!

Although water offered itself in a fair running stream for introduction into the Rose-garden, I should hesitate timidly as to its admission. Charming as it would be to see the Roses reflected, like Narcissus, in such a mirror—to muse upon beauty, like Plato beneath the planes, which grew by the waters of Ilissus—we should simultaneously strengthen the cruel power of our fiercest enemy, frost.

Let us now consider, collectively and individually, the various families of this our royal flower, that we may invite those members whom we may esteem most worthy to be guests at our feast of Roses.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

THE PEAR.

(Continued from page 17.)

WE now come to treat of the art of grafting, which in passing we may remind the reader is of very great antiquity. Although we cannot definitely say to whom the honour of first introducing it belongs, yet we nevertheless know that it was practised to some extent by the ancients; but from all we can gather from the writings of these periods, it would appear to have been but very imperfectly understood and acted upon. It is referred to by Aristotle and Pliny, as well as several of their contemporaries, but must have been practised more from

curiosity, and to afford amusement, than from any benefit they expected to derive from the unions made by them between scion and stock. How far they succeeded in obtaining practical results from the unions made, we have been unable to ascertain; yet we have no sanguine hopes that the results were great. It is a pleasure to us, however, to be able to look back through the dark vista of two thousand years to the cradle-days of a science which is of so much benefit to the gardening world of the present time.

There are various modes of grafting, but it is purposed to make reference only to that mode of it which is in most general use for the Pear when young, and which is known as whip-grafting, or, as it is sometimes called, tongue or splice grafting. Having in our arrangements generally spoken of the Quince stock before the Pear stock, we shall treat it first; for although the mechanical operation in both cases is the same, yet the after-treatment varies to some extent. We shall surmise that the stocks to be worked have been well grown, and are not less than $1\frac{1}{2}$ inches in circumference, and have been headed over in winter to about 6 inches. The scions we also expect to have been selected from the desired sorts at the pruning season, and that all the best ripened and strongest of the wood has been reserved for this purpose. This mode of grafting is invariably done in spring—from the middle of March to the middle of April—but the state of both scion and stock, as well as the other attending circumstances, must all bear more or less upon the time when it ought to be done. As a general rule, we find the first week in April to suit as well as, if not better than, any time prior to this date, as, generally speaking, the stock is beginning to be pretty active, while the scion is still in a dormant or semi-torpid condition, and these we consider the conditions upon which the greater amount of success depends. This is the very reason which induces us not to transplant stocks the year of grafting, as, being established in the ground, they are easier and more quickly excited when spring comes, and consequently are just as far ahead of the graft as is necessary to insure success. If the stock had been transplanted prior to this operation, the check sustained would have to be overcome, and the tree would be longer in showing signs of active vegetation. At the very least, there ought to be a week between the stock and the scion, and in proof of this we may refer the reader to what Dr Lindley has said upon this point, and which in practice we find to be correct. At page 339 of his 'Theory of Horticulture,' he says:—

The scion should be more backward in its vegetation than the stock, because it will then be less excitable, otherwise its buds may begin to grow before a fitting communication is established between the stock and scion, and the latter will be exhausted by its own vigour; if, on the contrary, the stock is in a state of

incipient growth, and the scion torpid, cellular granulations will have time to form and unite the wound, and the scion will become distended with sap forced into it from the stock, and thus be able to keep its buds alive when they begin to shoot into branches. In order to assist in this part of the operation, a 'heel' is sometimes in difficult cases left on a scion, and inserted into a vessel of water, until the union has taken place; or, for the same purpose, the scion is bound round with loose string or linen, with one end steeped in water, so as to secure a supply of water to the scion, by the capillary attraction of such a bandage. Indeed, the ordinary practice of surrounding the scion and stock at the point of contact with a mass of grafting clay, is intended for the same purpose—that is to say, to prevent evaporation from the surface of the scion, and to afford a small supply of moisture; and hence, among other things, the superiority of clay over the plasters, mastics, and cements occasionally employed, which simply arrest perspiration, and can never assist in communicating aqueous food for the scion.

Indeed, the whole secret of success depends upon attending to these few simple facts—facts so simple that “he who runs may read,” learn, and put into practice with the greatest of confidence.

Almost every one has a mixture of his own, which he terms grafting-wax or grafting-clay, with which he covers over the union between the scion and the stock. Last spring we grafted a considerable number of Apples, and used nothing else than clay got at a brickwork near by, and which had been well “milled,” and rendered as plastic as butter; this we found to answer admirably, as the result proved equal to our anticipations. Most people, however, introduce some foreign substance, which has a tendency to prevent cracking. This, however, is not necessary if the clay is covered with moss and moistened two or three times a-week by a watering-pot with a fine rose. I intend, however, this spring, when grafting, to introduce a little of the combings of horses, which, I believe, will make it even unnecessary to use moss. Mr Thomson, in the ‘Gardener’s Assistant,’ recommends “two parts of clayey loam and one part of cow-dung free from litter . . . with some fine short tough hay mixed and beaten up with the cow-dung and clay.” Others use horse-dung and clay, while another party uses a combination of all the three, which we believe to be the best where a mixture is made, as the horse-dung will, to a certain extent, prevent cracking, while the cow-dung will render the whole more plastic where the clay is inclined to be loamy. Where clay can at all be got we would not recommend “wax,” as clay keeps the scion in a more natural condition than it is possible to obtain from wax, which only serves the purpose of excluding the air and preventing evaporation without supplying that moisture which is so congenial to the wellbeing of the graft. I may, however, give a few of the component parts which different horticulturists have used as grafting-wax. First, bees’ wax and tallow, equal parts, laid on warm with

a painter's brush. Second, four parts pitch, four of resin, two bees' wax, one of hogs' lard, and one of turpentine, melted and well mixed, and spread upon paper, which may be cut into strips before being applied. Du Breuil used two parts Burgundy pitch, two parts black pitch, one part yellow wax, one part tallow, and one part sifted ashes; while Mr Downing made his wax of three parts bees' wax, three of rosin, and two of tallow; while he says the wax in general use in America is composed of equal parts of these three ingredients, and sometimes with a preponderance of tallow. One or other of these compositions being ready, let the operator provide himself with a good sharp knife and a quantity of good soft matting to tie the graft and stock together. Let him then proceed to cut over the Quince in a slanting direction, within 2 or 3 inches of the ground, at the same time endeavouring to obtain a bud at the top of the cut made upon the stock. The object we have in view in thus endeavouring to have a bud at the top of the stock, is to induce an upward flow of sap towards the scion, which will have a tendency to hasten the period of adhesion by the formation of granular and woody matter. If a union is formed without this top bud, a considerable part of the upper portion of the stock will, in all probability, perish—that is to say, it will die back to a parallel line with the under bud of the scion. Let a slice now be cut longitudinally, of about 2 inches in length from the stock, entering gradually from the bottom until it reaches beyond one fourth of the diameter at the top, on the opposite side from the bud. It is better that such a cut be made in one pull, as it will therefore have a smoother and more even surface than if done by repeated cuts. Next proceed to make a cut downwards for receiving the tongue of the graft. Enter the knife about half an inch from the top, making an incision in a slightly oblique direction towards the opposite side of the stock, until it is about three quarters of an inch in depth. This finished, take the scion, cut it also longitudinally right through from one side to the other in a slanting direction, so that a cut surface of 2 inches in length is left; thereafter, form the tongue by entering the knife about three quarters of an inch from the bottom, making an incision to the depth of three quarters of an inch, which shall nearly fit into the one made upon the stock; next cut over the scion, leaving two or three buds above the place of union. Proceed now to enter the one into the other, pushing the scion down until the bottom of it reaches the bottom of the cut upon the stock. As is generally the case, the scion will not be large enough to cover the whole of the wound upon the stock, therefore be careful to get the outer bark of the stock and the outer bark of the scion to join neatly together on one side. Being satisfied that all these things are attended to, take a

nice broad soft piece of bast mat, and tie the two tightly together, being careful, however, not to use more than is absolutely necessary to keep the graft in its place, as if too much mat is used it will have a prejudicial effect in keeping back a considerable amount of the moisture of the clay, which experience has taught us is of so much benefit to the graft. This being done, cover the whole over to the depth of an inch or two with clay, or whatever is being used for covering. As the Pear does not form a union nearly so readily upon the Quince as the wild Pear, it has been found to be absolutely necessary to have recourse to what is called "earthing or banking-up." This is done by drawing soil up over the place of union, and covering the whole save the top buds of the scion, much in the same way as "earthing-up" culinary crops. By doing this, the graft is kept in a more genial condition with regard to moisture, &c., and is thereby enabled to struggle longer for existence. It will be some considerable time ere the buds show many signs of progress, but in the interim the bud upon the stock may attempt to push strong, and if so, it ought to be pinched back to one eye at every attempt, until the scion begins to push, when it ought to be cut right off, to throw the whole sap of the stock into the graft. As soon as a few inches of wood are formed, the clay may be removed and the ligatures cut off, as they may be getting tight and marking the bark. It will be better, however, to re-tie them afresh and draw up the earth again to keep them steady, and enable them better to withstand the action of the wind, which might very easily break them off, as the union is of a very slender nature for a considerable time. It will be noticed that our mode differs in several particulars from that recommended by M'Intosh, Thomson, and Lindley; but we are of opinion that good grounds can be shown for adopting our principles. Lindley, in his 'Theory of Horticulture,' see page 314, gives a sketch of whip-grafting, where the stock is cut over a considerable distance above the last bud; and we therefore reject this portion of his instructions upon the principle laid down by Thomson, who considers a bud at the top, if not absolutely necessary, at least of much practical utility and benefit to the scion. Again Thomson, in 'Gardener's Assistant,' see page 391, gives a cut of his mode of whip-grafting, wherein the tongue is very short, placed near the top of the scion, and entered right at the top of the stock. From him we also differ in this particular, that we prefer a long tapering tongue beginning near the bottom of the scion, terminating near the top of the cut, and which is entered half an inch from the top of the stock. By performing the operation in this way, we are of opinion that the graft is firmer and more secure from accident, while there is a greater surface to form a union, so that when once a

union is formed it is stronger and better than upon his principles. In the next place, M'Intosh, in his 'Book of the Garden,' vol. ii. page 330, gives a drawing of his method, where we consider he makes the same mistake as Lindley in neglecting a top bud upon his stock, while he approaches very near our idea regarding the making of the tongue and fixing it upon the stock. It will therefore be noticed that we have adopted something from each of them, which, when put into execution, differs from them all.

Having spoken thus fully of the grafting on the Quince stock, it is only necessary to say that, in grafting upon the Pear, the mechanical operation is identical in so far as the graft and stock are concerned, but that no "earthing-up" is necessary, as, the Pear being a more natural stock for the Pear, the union is not nearly so long in forming. "Earthing-up," however, would not be the least injurious even with the Pear stock, if from its height it was not impracticable, as it would be a support and guard against the influence of strong winds.

Unless the stock and scion have been all the stronger, there will only be one good strong shoot made the first year, which, if intended for a wall-tree, ought to be cut back to within three eyes at the pruning season. If, however, the stock used is a Quince, it ought to be cut over about 1 foot from the ground, and the three top eyes encouraged to grow the following summer. These will, in all probability, all push in spring, and ought to be trained upon a trellis, so as to give them the set necessary for the wall. Let all three branches be trained in nearly an upright position, so that thereby the flow of sap may be more equalised and the young tree better balanced, as more of the future symmetry and general appearance of the tree depend more upon the first two or three years' management than all the after-training of future years. It will, however, entirely depend upon what form of training is to be followed, in order to determine upon the mode of pruning to be adopted the second year. We purpose making reference to the various modes in general use, but preferring as we do the fan to all other styles for both Pear and Apple—as being the prettiest, the quickest to fill a given space, and as easy to put into practice as any of them—we shall take it first. When the pruning season comes round again, our practice is to cut the centre branch back to within three buds of its base, leaving the two side-branches from 1 foot to 18 inches in length, according to their strength; and when we make our cut, we invariably leave the top bud in the front of the branch, while the second bud, which we expect to form a branch also, is left upon the upper side. Our reason for so doing is, that when the branch, which we are now forming, comes to take its place as the horizontal or bottom branch of the fan, it may have fewer crooks, and appear neater

than if cut in any other way. And further, by leaving the second bud upon the upper part of the branch, it starts and grows in almost the exact position it will require to take on the tree, so that, when the pruning season comes the following year, it may be easily placed in its position without the slightest twisting or injury to its cellular tissue. In nailing these two branches to the wall, it will be to their advantage to be laid in at an angle of about 45° , so that they may receive all the encouragement possible to enable them to make good strong wood for the following season. During summer, if the tree is in robust health, it will send up three shoots from the centre branch and two from each of the two side-branches, thereby giving a nicely-formed young tree of seven branches. In the winter of this year we recommend such a tree to be removed to its permanent position upon the wall; but if it is desired to keep it another year where it is, it ought to receive a good root-pruning to induce the formation of fibrous roots, which alone are the feeding-roots, to check those which are inclined to go downwards, as well as to prevent rambling, and induce the formation of fruit-buds. When the tree is placed in its permanent position, it will be a benefit to it if a few inches of rough stable-dung be placed over the roots to prevent the action of hard frost upon them, as well as prevent evaporation, if hot parching weather should set in before the tree is properly established. Most people do so by placing it upon the surface; we, however, prefer placing it a few inches above the roots, and cover this over with an inch or two of soil, which answers the purpose equally well, and at the same time looks more tidy and cleanly. The soil best suited for the Pear will be spoken of at the end of this chapter, when treating of the formation of borders. When pruning at this time, we cut the centre shoot back to within 6 inches of its base, leaving the two side ones about 1 or $1\frac{1}{2}$ feet, cutting upon the same principles as last year, and training them at about 45° angle. The under branches are laid down to about 25° ; nothing is taken from the point of them, but the side-shoots upon them are cut back, just as we have cut the others. In the summer following, if young wood pushes more than is wanted, we pinch it back to about 2 inches in June, and again in August to about one eye from where its lateral pushed. In the following winter we cut the centre back to about the same as the previous year, bringing down the young wood to about the same angle as before, and lowering each previous year's wood to the place of its predecessor; so that, when the operation is finished, the under branches are horizontal, and in their permanent places. The tree will now be four years of age from the graft, and possessing thirteen branches, if we allow that the two under branches will not do more than make a leader for themselves after we stop

cutting their points, which, in all probability, will be the case. In training a fan-tree, our object is to get the wood as evenly dispersed all over the tree as possible, so that when the branches, by running at different angles, exceed 12 inches between each other, we cut so as to get a young branch to fill up the vacancy. We still continue the pruning as before, with regard to the centre and side shoots, until we have as many branches as will fill up the wall—never, however, topping any branch after it has reached its permanent position, unless the wood is either soft or watery or unripe, in which case we reduce the branch until we get good sound wood. The superfluous wood which is made in summer we pinch as before directed, and in winter cut back to about 1 inch, which is left, and will, in the course of time, form a fruit-bearing spur, if, in after-pruning, each shoot it may throw out is cut back to about one eye. Root-pruning we would earnestly recommend every second year, until the tree get into a good bearing condition, after which it may not require to be done again for five or six years. By continuing, however, to root-prune at intervals of five or six years, the tree will keep more vigorous, bear better, and give more satisfaction than if left entirely undisturbed.

JAMES M'MILLAN.

(To be continued.)



JOTTINGS ON THE TULIP.

No. I.

"The Tulip next appeared, all over gay,
But wanton, full of pride, and full of play.
The world can't show a dye but here has place—
Nay, by new mixtures she can change her face.
Purple and gold are both beneath her care,
The richest needlework she loves to wear ;
Her only study is to please the eye,
And to outshine the rest in finery."

So sang the poet Cowley ; and though not very poetical, he is nevertheless very truthful and correct in his description of this beautiful flower. A bed of Tulips, in their full beauty in the month of May, bears out in an eminent degree the impression of the poet's song, and leaves lasting recollections of splendour and gracefulness on the mind of their devoted and fortunate possessor. With a very different eye to the poet does the careful and attentive grower look upon his pets. He repudiates the idea of gaudiness and finery altogether, insinuated by the poet's description of his choicest treasures. Gay they certainly

may be, and though scentless, unlike the Rose and the Violet, yet the beautiful touches and stripes he beholds in his feathers and flames sufficiently compensate, in his estimation, for this lacking virtue. In his humble opinion, it is "a thing of beauty, and a joy for ever." Though less rare and expensive than they were two hundred years ago, a good bed of Tulips cannot be, in the present day, collected together for a moderate sum, when the finest strains and the newest varieties are expected to be found there. Still, a ten-pound note, judiciously laid out, will insure a fine display; leaving it to the "old dons," who are bent on winning the silver cup at their next meeting, to spend their five guineas on the latest new one to make sure of success, which even then may not be realised; for too frequently do we see the prize finding its way into the hands of the careful and watchful grower, rather than into those where "money is no object."

To look at the prices asked and given for Tulips within the last thirty years, the five-guinea outlay is, by comparison, a very modest sum. Groom of Walworth catalogued some of his choicest and rarest varieties, within my own recollection, at extraordinary sums. For instance, Victoria Regina, a feathered Bybløemen, figured at £100, Nourri Effendi, a flamed Bizarre, at even a larger sum; and now these scarcely occupy a place on the bed—Nourri Effendi, we believe, proving synonymous with Polyphemus, and Victoria Regina being far too tender and truant even to obtain one fine bloom in a dozen. The finest bloom of this variety we ever had the pleasure of beholding, was in the flamed state in two instances in the same year, side by side, and very grand specimens they both certainly were: I thought myself extremely fortunate in securing one of them; but, alas for the fickleness of the whole tribe! it proved anything but an ornament on my own bed. I could not but grieve to see such a transition from good to bad; but it did not prove my first or last disappointment, neither did it regain its fine qualifications. Polyphemus may be taken as the type of a fine Tulip in its exquisite cup, even which Glenny condemns as being too long. This fine Bizarre, some sixty years ago, was purchased for the respectable sum of £50; and Mr Clarke of Croydon, the celebrated grower, grew a variety called "Fanny Kemble," a flamed Bybløemen, which, at his death, was sold for a sum over £70. This variety is rarely seen on a bed, consequently its reputation cannot be of the highest order; and I think I might venture to affirm that Brown's Salvator Rosa would be found more than its equal. A finer marked flower can scarcely be mentioned than the latter, or a more constant variety, when a fine strain has been insured. I may say that my Salvator has cost me twice five guineas, were I to

put down all the items I have paid for worthless strains—worthless, indeed, they proved, even when assured I was purchasing the finest strains in the world. However, I have at last secured the right one, as last season fully proved by a most beautiful and unmistakable bloom. Louis the Sixteenth has held considerable pretensions, if its price could command them to a place on the bed of every respectable grower. But I never saw a good bloom of it—being always flamed, and always *dirty* in consequence. It is now pretty generally discarded, I believe, on account of its discoloured bottom, although at one time it was considered cheap at twenty guineas. There are growers at present who can boast of possessing a pure strain in the feathered state, and who state it to be the finest feathered Byblœmen in cultivation. It is of Dutch origin, I believe, and may have figured amongst those varieties which are mentioned as having been bought and sold as bargains at quite fabulous prices. I am intending, in a future paper—that is, should the Editor be persuaded to admit this rambling effusion—to advocate the raising of seedlings more generally than at present; but I would not for a moment desire to raise the expectations of those who may be persuaded to make the attempt, that they are likely to obtain such extraordinary sums as the people of Scotland realised for their seedlings during the Tulipomania of 1634. In one instance, a Bizarre named Viceroy was sold for a sum equal to £250; and we find recorded Semper Augustus at more than twice that sum; whilst Admiral Leifken and Admiral Van der Eyck are more modestly valued at £125.

When we read of Sir Thomas Gresham drinking a diamond of great value, dissolved in a glass of wine, to the health of Queen Elizabeth on the occasion of her opening the Royal Exchange, we find him entirely outdone in extravagance by the sailor who munched up with his breakfast of a herring the root of the celebrated Semper Augustus, valued at the time at three thousand florins, and which no doubt proved more delicious than Sir Thomas's glass of wine.

OMICRON.



I N S E C T S.

If any one were to calculate the labour and expense incurred in one year in combating those insect pests and diseases which beset the gardener in every department of the garden, it would be found to be a very large item, indeed, of the general expenditure. And it is a question of serious import to the gardener, whether all the scraping, scrubbing, painting, &c., which has for so long been considered an

indispensable part of the yearly routine of garden-work, is really so efficacious as to justify a continuance of such measures. I have a strong impression that with many the subject is a matter of faith, and not of experience; and that they would only be too glad of an excuse to get rid of their belief, and a labour of the most irksome kind, which can often be ill afforded. At all events, it was while pondering the matter over in this light about three years ago, and making a calculation of the probable time and labour required to clean and dress a considerable range of vineries and peach-houses, and which could not be well afforded at the time, that we determined to disregard all advice and preconceived notions on the subject, and strike out of the usual track, for a season at least, and risk the consequences. The houses were of course washed down with the syringe for the sake of cleanliness, and to remove obstructions to the light; and the Vines and Peaches, early and late, were tied up after pruning without any cleaning or washing whatever. The result was that in the following season we were just as free from spider and thrip as before, and gainers upon the whole to a considerable extent in time and labour. Since then we have never dressed either our Vines or Peaches as a protection against insects, not even cleaning the loose bark off the Vines, except where actually unsightly; and the result in every case has always been perfectly satisfactory: nor have we any intention of doing so again; and, I fancy, no amount of reasoning would prevail upon us to alter our determination, so convinced are we of the needlessness of such measures. No doubt it will be argued, as an arithmetical question, that if ten thousand red-spider are destroyed while in the embryo state in autumn, there will be that number less to contend with in summer—a very plausible demonstration, I admit, and one which I am quite willing to leave unanswered. I will only set the practical experiment against it; but this I will assert, that even although the most rigorous system of cleaning had been adopted, it would be an easy matter to produce the pest with marvellous rapidity. Red-spider is worse in some seasons than others; and it might naturally be expected to be worse the season following, but such is not the case, for it as often happens that Vines which have suffered one year are comparatively free the next. Through the hot summer which we have just passed, our Peach-trees have been wonderfully clean. As a rule, our late vineries are generally quite free from spider; and in some of our earlier vineries the Vines retain their leaves healthy and green long after the fruit is cut and the wood hard and brown.

The above remarks apply chiefly to winter-dressing. We are not without faith in some specifics, but after trying a good many nostrums, we have fallen back upon sulphur as our best friend. Applied either

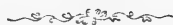
with a syringe or a duster, there is no doubt about its efficacy in cases of mildew, red-spider, or thrip; but our great panacea for the ills we have described, and many others, is healthy root-action. We have great faith in copious waterings, good drainage, and a discreet use of liquid manure. I am inclined to think that many of the failures which have been attributed to heated or aerated borders could be traced to neglect on one or other of these points. I could not say that I ever saw any noticeable effects produced by sprinkling guano-water, or ammoniacal liquor of any sort, upon the floor as a preventive against insects; but I have not the least doubt about the good effects of liquid manure when applied to the roots—and it seems to be very energetic in its action, indeed. Strong doses applied to pot-Vines, Melons, Cucumbers, or French Beans, that are affected with spider or thrip, will often eradicate them sooner than anything else.

There seems every reason to believe that insect and parasitical attacks are, with a few exceptions, a consequence of ill health arising from some other cause. Keep up the vital energy. Thorough ventilation, full exposure to light, a moderate temperature, judicious watering and mulching, will effect more than all the scrubbing and painting in the world. Our Vine-borders here are all well drained. Some are aerated, and chiefly inside; but we mulch thickly inside and out, and are so impressed with the importance of watering copiously, that we have had our tubs and cisterns raised, so that we can run the tepid water off through a hose on to the border in a copious stream, and deluge the border in a few minutes. The result is—and I hope I will be excused for saying so—that the crops are always excellent, and shanking is quite unknown. The mulching keeps the roots so close to the surface, especially in the aerated borders, that you can scarcely shove a pen-knife into the border without bringing a bunch of fibrous roots to the surface.

It has been argued, somewhat confidently, that spider, green-fly, and suchlike pests are the natural concomitants of plant-life under any conditions, and rather undue importance has been attached to the efficacy of the smoking-pan, the virtues of tobacco, and other measures of the same kind; but I would rather not encourage a reliance upon such auxiliaries, and would be inclined to look upon their too frequent employment as a sign of bad generalship. One of the most fertile sources of disease among plants is the crowding those requiring different temperatures and modes of cultivation into one house. Many gardeners and employers insist upon having plants of all kinds, whether they have accommodation or not; and into one of the two extremes they must go—the greenhouse or the warm stove. Where collections of plants are desired, an intermediate house is indispensable

—a common ground on which the stove and greenhouse can meet in summer or in winter ; and what a convenience to the gardener ! But there are very few places as yet where such a convenience exists, although its importance is daily becoming more pressing. The plants that will not grow in a greenhouse, and which would only linger out a miserable existence in a stove, are too numerous to mention. Mexico, New Holland, and the Cape would furnish a whole host of the most beautiful and useful plants in cultivation. That gem, the *Luculia gratissima*, too frequently seen long, lanky, and forlorn-looking in a stove, or contending for very existence with cold and green-fly in a greenhouse, is worth a house itself ; and beside it would flourish many of the fine Ferns, Orchids, and other plants that are crowded in out-of-the-way corners in our stoves and greenhouses, not to speak of Oranges, Palms, Cycads, Begonias, Caladiums, Passion-flowers, Gardenias, and innumerable others. The New Holland variety of that fine Fern the *Neopteris*, or Bird's-nest Fern, when grown in a stove, where it is frequently seen grey with thrip, or scrubbed and washed out of its original beauty and characteristics—a perfect caricature—is a continual protest against the conditions under which it suffers ; but change it to the intermediate house, or a sheltered corner of the greenhouse, let it have plenty of water and shade, and it will take care of itself, and manifest no disposition to disease. The finest plant of this kind I ever saw, about 6 feet across, with leaves that almost rivalled in breadth and substance the *Musa Cavendishii*, grew in a cool conservatory beside Camellias, where the winter temperature was seldom above 40° or 45°. If time permitted, numerous instances could be furnished, showing that many of the diseases to which plants are subject are the result of functional derangements, or impaired vital energy arising from other causes. British Queen Strawberry and its kind are more subject to spider than others, as also the Frontignac Grapes and other weak-growing kinds. Black Prince Strawberry, Royal George Peach, some kinds of Roses, and certain varieties of the *Verbena* are very liable to mildew, as there are others which are peculiarly exempt. And the same curious and significant facts are observable among various kinds of Pears, Apples, Plums, and vegetables—as a rule, the weakest always going to the wall.

J. S. WORTLEY.



THE KITCHEN-GARDEN.

No. II.

ASPARAGUS.

(Continued from page 29.)

FOR making a permanent plantation of Asparagus, the deepest, and, generally speaking, the lightest, soil in the garden should be chosen. A deep sandy loam is the best. Thorough drainage is a matter of great importance, and all ground intended for this vegetable, in which there is the least chance of stagnant water, should be drained to the depth of 4 feet. Wet rots the fleshy roots in winter, and, of course, the produce in spring is correspondingly inferior. A heavy dressing of good manure should be trenched into the soil to the depth of 3 feet, if the staple will allow of such a depth. Deep manuring is of great importance, as the greedy rootlets soon shoot downward to the subsoil. Besides this, another heavy coating of manure should be dug deeply into the ground after the trenching. When these operations are performed, the soil requires to be thoroughly well pulverised, and the manure well incorporated with it. To give young Asparagus a good start, a dressing of rotten leaves forked into the surface of the ground is very beneficial. Thus prepared, it is in readiness for receiving the plants. In some soils, however, the preparation of the soil for Asparagus is a much more serious affair than I have indicated, which, from its simplicity, is mainly applicable to soils which are light and naturally suitable to the nature and growth of this vegetable.

In heavy clayey soils, if success for any length of time is to be attained, it is sometimes necessary to "force" or make up the soil to a considerable extent, in order to make it sufficiently deep and open. Where the subsoil is very tenacious and wet, it moreover becomes necessary, besides ordinary draining, to bottom the beds with broken stones, brickbats, lime-rubbish, or any open material that will prevent water from collecting about the roots in winter, which is fatal to good Asparagus culture. If the heaviest part of the natural soil can be removed, and light sandy soil substituted, it is very desirable to do so. Under such circumstances, it is a good plan to keep the beds a little above the ordinary ground level, to make doubly sure of escaping the evils of wet underneath. I have burned a large proportion of the soil when it has been heavy, and then mixed it with the best part of the natural soil, adding leaf-mould and manure, and thoroughly mixing the whole together; and in this way have succeeded in growing good Asparagus without bringing in new soils, where it would have been quite impracticable to have grown it without some extraordinary preparation. But, after all, no matter how carefully the ground is prepared, Aspara-

gus does not succeed so well, under any circumstances, as it does in a soil naturally suited to it; and light deep sandy loams, when well manured, cannot be approached for any length of time by any artificial made-up soil in localities where the soil and subsoil are clayey and wet.

In making plantations of *Asparagus*, some lay out the ground into 4-foot beds, with paths between about 2 feet wide. In each bed three rows are planted at about 18 inches apart. In preference to this, and for the production of the finest possible samples, the plan of planting in rows, 2 feet 9 inches or 3 feet apart, without forming the ground into beds, is more to be recommended. Apart from this being the simplest way, the extra room afforded gives far finer produce; and the economy of space in the production of so esteemed a vegetable is questionable policy, for one finely-grown head or shoot is preferable to three or four spindly tough ones. Closer planting crowds the tops too much in the growing and ripening season, and, as a consequence, prevents the full development of the crown for another year.

Generally speaking, about the first or second week in April is the best time to transplant from the seedling rows into the ground where it is to remain. About this time it will usually have sprung about an inch; and although it can be transplanted when very much more grown, there is less risk of injury just when commencing to grow, and more chances of its starting into growth without being checked. It is of great importance in lifting the young plants to preserve the roots as entire as possible; and the best way is to take out a trench the contrary way to that in which the lines run, and undermine the plants, and disentangle and remove them with as little breakage as possible. Till planted, they require to be screened from drying sun and winds by throwing mats over them.

I know of no simpler and better way of planting than that of stretching a line along the prepared ground, and cutting close to it on each side in a slanting direction, leaving a ridge like two sides of a triangle on which the young plants are set, with half their roots on one side the ridge and half on the other. The depth to which the cutting on each side of the line must extend is guided by the length of the roots; generally speaking, a foot is sufficient. The French growers of *Asparagus*, instead of planting on the level, plant in sunken trenches, which, for a climate like France, is no doubt correct practice.

Admitting that the crowns are sprung an inch or more, the depth at which they are placed along the ridge should just be such that the points of the young growths are covered about an inch when the ground is levelled up over them. In heavy damp soils the ridge may be

slightly elevated with advantage. This is easily accomplished by placing the plants on the ridge at the level of the soil, and then covering up with the soil which lies between the ridges. Where the soil is at all unfavourable to the growth of *Asparagus*, it is well worth while to prepare some light rich compost with which to cover the roots and crowns. It helps to start them freely into growth at first.

On light sandy soils it is not advisable to raise the ridges above the level even in this country, for under such circumstances they are apt to suffer from drought, and are not so easily watered when this would be desirable. It is all well in such soils to mulch between and close up to the rows with dung or partially-decayed leaves. This, in case of early summer drought, will protect the roots, and render watering more beneficial when applied.

The planting should never be performed when the ground is wet; and it is much better to wait for a dry time, even if the plants should shoot a few inches, than to work the ground as has been described for planting, when it is in a wet state. This of course applies with more force to heavy damp soils. Boards should be laid across the ground, so that treading on the soil while the operation of planting is going on be avoided.

As the operation is proceeded with, strong stakes should be driven into the ground along the rows, and rails of wood nailed along them in the shape of a fence, about $3\frac{1}{2}$ feet high; the first rail at 18 inches from the ground, and the other at the top of the stakes. These are intended for the *Asparagus* to be tied to, to prevent its being broken by the wind. Few plants are so easily injured by wind as *Asparagus*. When the top gets about a couple of feet high and begins to expand its foliage, winds lay hold of it and break it off from the ground, and the consequence is the ruination of the stools for another year. Every precaution should therefore be taken to guard against this evil. I have sometimes, when rails and posts were scarce, staked the rows with dwarf Pea stakes, which, though unsightly, answer very well.

The summer treatment consists of keeping the ground free from weeds, and taking care that the plants do not receive a check from drought. It is a good plan, when the summer proves dry, to give a good soaking with manure or guano water, and then cover the surface with litter. I have sometimes used short grass, which, excepting that it breeds weeds, answers very well.

When quite ripe in autumn the tops should be cut off close to the ground, the rough part of the mulching material and all weeds removed, and two inches of good rich manure spread over the whole surface of the ground, covering the line of plants especially well. Nothing more is then necessary till spring, when the manure used as a dressing in

autumn is drawn away from the rows with a rake into the space between, when it is gently pricked into the soil with a fork, not going too deep to injure the roots. Before this forking-in process is performed, the soil is drawn back carefully from the crowns and a dressing of fresh well-spent manure put in its place, and over it the soil is returned. This should not be to a greater depth than about three inches, manure and soil together. This winter and spring treatment applies as much to after years as to the first after planting. The plan sometimes practised, of throwing out the soil from the alleys on to the surface of the beds in autumn, serves no purpose, except that of letting the frost act upon the roots at the sides of the bed. Two or three inches is covering sufficient for all purposes, and as this is a vegetable that is not easily overdone with manure, the best covering is good rich manure.

If all does well, the second year's growth is a strong one, and every shoot should be allowed to grow. No good comes of cutting it the second year, and even the third the cutting should be moderate, and not continued later than the end of May. Sea-weed forms an excellent manure for *Asparagus* in after years, and, where it can be procured, may be liberally applied as a covering for winter, and also as a mulching in summer. This, of course, can only be practised on the sea-board, but common salt is an excellent substitute, and sprinklings of it can be occasionally applied. And where the soil is really porous and suitable for this vegetable, liberal doses of the draining of dung-heaps, guano, and such stimulants, may be applied regularly in summer with much benefit.

The French system of putting a heavy covering of earth or manure over the crowns in spring, with the view of blanching the stalks, cannot be too severely condemned; and that which appears in the markets of London thick and white with a green tip—the only eatable portion—is as tough and worthless as a piece of sash-line. The blanching by this process only renders all the blanched portion unfit for using. It is only when it is nice and green from exposure to light and air that it is eatable at all, for no human being can masticate the white parts of it. When about 6 to 7 inches above ground it is in good order for the table. In cutting it, some leave a few of the growths from the very commencement; but I would recommend to cut all that comes up fit for table while the season lasts. It is injurious to continue cutting later than the end of the first week in June—it weakens the crowns, and in time ruins them.

Asparagus is one of the few vegetables that forces with great ease, but from the expense of cultivating it and getting it in a good state for forcing, it will always remain a high-priced vegetable in winter

and early spring, when it is much prized by all who can procure it. In some gardens there are beds constructed with hot-water pipes for bottom and top heat, and with movable glass coverings; the same beds can be forced for years in succession. The general way of forcing is to carefully lift 4 or 5-year-old healthy crowns, and to pack them closely into mild hotbeds of leaves and dung in olden times, but now more frequently into hot-water pits. It being one of the easiest and simplest of plants to force, any one who can make a hotbed of leaves or manure that will afford a gentle bottom-heat, needs no more in the way of appliances to have forced Asparagus. The roots are packed close together, with some fine light rich soil below and about them, and covering them about an inch. Neither top nor bottom heat must be violent, or the heads will be weak; 55° of a night temperature is enough. Light and air are essential to get nice green colour, and as natural a flavour as is possible. In spring the lights should be drawn entirely off and air let in all night. When forcing is regularly carried on, it is of course necessary to plant as much every year as is required for forcing to keep up a succession in a good bearing and forcing condition; otherwise, a planting of Asparagus on a congenial soil lasts for years.



FRUIT-CULTURE.

THE VINE.

(Continued from p. 22.)

IF the position where the border has to be formed is naturally wet, a set of drains, about 10 feet apart, should be cut across it, and led into another drain running parallel with the border at its extremity; the latter should be a little deeper than the others; all should be cut at least 1 foot deep in the subsoil, and instead of using the soil cut out of the drains, for filling in over the pipes, wheel it away, and for this purpose use any of the following materials that can be most readily procured—brickbats, small stones, gravel, burnt shale, or chalk. The drain-pipes used should have close-fitting sockets, to prevent the roots of the Vines getting into them. When the drains are filled in is the time to consider whether the border is to be heated underneath by hot-water pipes or not, or if it is to be aerated. The former is quite unnecessary, unless for Vines that are to be forced very early. The latter is of importance wherever the soil is of a stiff retentive character, or where it may come under the designation of loam, but not sandy loam. For the latter we think it is of little or no importance whether the border is aerated or not. As far as known to us, we were

amongst the first to recommend the aerating of Vine-borders from beneath. We at the time considered it theoretically right to do so in circumstances such as indicated, and since then we have had ample proof of its practical value. It is most readily effected by laying a number of large drain-tiles all over the surface of the bottom of the border, connecting them by means of upright pipes, say 4 inches in diameter, with the *external* air at the extremity of the border, and with the atmosphere of the Vinery, by means of similar pipes, rising a few inches above the surface of the inside Vine-border when finished. The openings of the pipes inside the Vinery being in a higher temperature than those outside, a constant current of air will pass through the whole pipes under the border, from the external to the internal atmosphere of the Vinery, aerating the soil from beneath,—the effect of such aeration being, that the constant supply of oxygen from the fresh air will decompose the carbonaceous matter in the soil, convert it into carbonic acid gas, which, combined with water as its vehicle, enters into the roots of the Vines, ascends into their leaves, where, under the influence of light, it is decomposed in its turn, the oxygen liberated into the air, and the carbon fixed in the tissues of the plant. In support of this theory we may state, that having repeatedly examined the state of the roots in borders formed on the principle in question, we have found the interstices amongst the pipes, and even in them, a complete mass of fine healthy fibrous feeding roots.

It may be objected that in very dry weather a current of dry air would injure the roots. We do not think so, if the border is kept properly watered ; but during such weather the remedy is an easy one—plug the mouths of the pipes that come to the surface to supply air to the pipes underneath.

Having laid down the pipes to effect what we have just described, fill in around and over them with loose stones or brickbats ; then lay a course of turf, with the grass side down, and on this wheel in the soil of the border, but do not wheel over the made-up border : throw it up as loosely as possible, so that it may have its interstices full of air, which will hasten the preparation of the various ingredients of which it is composed for food for the Vines ; and generally such borders heat a little, which gives newly-planted Vines a rapid start by setting their roots into action at once. Another benefit resulting from this system of forming Vine-borders, is the facility with which superfluous water passes away, or can be detected if it does not by sounding the upright air-pipes. Where the soil of which the border is made is of a light sandy character, aeration is by no means necessary, for all carbonaceous matter in such soil is rapidly decomposed and prepared for the food of plants, from the facility with which air per-

meates it in all its parts. In such cases, all that is necessary is to drain the subsoil of the border as directed, if it is naturally wet, and to lay a few inches of lime-rubbish over its surface, then turf and the soil on it.

The concreting of the bottoms of Vine-borders should only be resorted to where the subsoil is of a very bad character, such as irony gravel. If it is honest clay or pure gravel or sand, we would not concrete, but would rather endeavour by kindness to keep the roots near the surface of the border, as we hope to show when we come to write of Vines after they are planted.

We now come to consider the question of covering outside Vine-borders. This is generally done to effect one or other of three purposes: to prevent the radiation of the heat the border has derived from the autumn sun; to warm the border by the application of hot fermenting material to its surface, such as leaves and stable-manure; or to throw off heavy falls of rain during the winter.

Of the first of these we thoroughly approve, and to effect it nothing is more suitable than a few inches in depth of dry fern or leaves, covered with wooden shutters, laid so as to run the water to the front of the border and into the drain, which in all circumstances should be there.

To attempt to heat the border by the application of hot manure applied to its surface, we consider a mistake, though it is still persisted in by good Grape-growers. The only excuse we can accept for it is the absence of the more rational method of applying heat from beneath.

The importance to be attached to covering Vine-borders for the mere sake of throwing off superfluous rain, very much depends on the rainfall in the neighbourhood. In that from which we write, where it seldom exceeds 30 inches in the year, and where the subsoil is a dry porous gravel, there is no necessity for covering them for the mere sake of throwing off rain, nor have we ever covered any of the borders of houses where the Grapes hang in fine condition till the end of March, and even April; but the case is different in localities like Greenock, for instance, as well as other places that could be named, where three times the quantity falls in a year. In such situations, even with good drainage, it is desirable to cover the borders of houses where late Grapes are hanging, as soon as the autumn rains set in, for which purpose glass, boards, or tarpaulin may be used. We do not like the system of concreting the surface of Vine-borders in order to accomplish this end, which was brought into notice by writers in the 'Gardeners' Chronicle' some twenty years ago, for the reason that it in great measure excludes the beneficial influence of the air from the soil, which

cannot safely be dispensed with, whether in the flower-pot or the Vine-border. Gardeners are familiar with the term "sour" when applied to soil, and which means nothing more than that it has got its particles so compactly forced together, when wet, that there are no interstices betwixt them into which the air can force itself and exert its "sweetening" influence; hence the importance of aerating Vine-borders by artificial means, where the soil of which they are formed is at all approaching an adhesive character.

W. THOMSON.

(To be continued.)



HINTS FOR AMATEURS.—FEBRUARY.

THIS month, when weather is fine, cropping of ground may in the smallest garden be fairly commenced. Arrangements, if not already made, as to how the garden is to be cropped, should be decided upon, so that a change may be made from what the ground produced last. The quantity of any kind of vegetable required should be considered, so that a superabundance of one thing may not be grown, and a deficiency of any other crop prevented. Crops which have to be sown early, and to remain on the ground till late in the autumn or winter, should be kept together as much as possible; for instance, ground for Leeks, Parsnips, Celery, Kale, &c., might form one plot or square. When cropping is divided into numerous small plots, much confusion and want of economy must prevail: the more attention given to systematic arrangement, the less difficulty will be experienced. Sheltered positions should at present remain unoccupied, but be well worked, and kept in readiness for early sowings of Cauliflower, Cabbage, Carrot, Lettuce, Radish, and suchlike. Where there is not the shelter of a wall, hedge, or other fence, a sloping bank may be thrown up, and a surfacing of fine dry soil placed so that small seeds may have fair play. Protection from north and east can be given by placing branches thickly on the cold side; hoops bent over where mats can be thrown across, is a useful practice. Endless are the means used for protecting early sowings and crops. When such as Kale, Cabbage, Broccoli, and Brussel Sprouts are only partially used up, and the remaining portion cannot be disposed of without cutting short the supply, they may be lifted carefully with all their roots, and placed in any spare corner thickly together—but not so much so as to cause rotting—there to remain till they are used; and protection is also easily given if necessary. The remaining refuse can be cleared off and the ground prepared for cropping, otherwise the best opportunities might be lost while the few scattered heads were standing

till wanted : where there is plenty of ground, such lifting, &c., is not necessary. A garden rather small for the demand (if not excessively so) we would prefer to one too extensive for the command of labour, manure, and other necessities. If placed in the latter circumstances, we would plant up a portion with fruit-trees to be kept dwarf ; or if they were not required, it would be better to form collections of shrubs, or turn the space into ornament of some kind, rather than allow it to be a harbour for weeds, which would spread their seed far and near, giving work and vexation when it might be prevented. A pinch of Cauliflower sown in a box of clean light soil will give a supply in close succession to those now under protection. It is a useful practice to lift Cauliflower plants from frames with their roots entire, and pot them, returning them under protection ; thus preparing them for planting-out in March, when the roots reach the sides of the pots. A check given at planting-out time often results in premature hearting. Drawing the plants up, making them tender, is another evil to be guarded against, which does more harm than no protection at all. After such a close mild season, sudden changes of cold weather may do irreparable mischief when one is off their guard, the plants never having been fully hardened. Protect Celery in severe weather, as before directed ; in wet localities it may be lifted and laid in sand, under the roof of a shed or any outhouse. A pinch of seed may be sown in a pan, pot, or small seed-box, and placed in a gentle hotbed till it is fairly up ; it can be pricked off singly when fit to handle, and grown on steadily, giving no check, either from cold, over-heating, dryness, &c., as it would be sure to "bolt." Where early supplies are not required, sowing may be left till the end of March. Those who wish to grow Kidney-beans early in a frame or other structure, may plant five in a small pot, and, when large enough, they may be shifted into a large size, or planted out in a prepared bed of soil ; but forcing heat is necessary till the season is so advanced that sun and covering up at night may give sufficient warmth. Potatoes, which have been placed in boxes on a little soil, or on turfs, &c., to sprout, may now be planted in a frame or pit, keeping the roots entire, and planting them about 3 or 4 inches under the surface of the soil : a crop of Radishes may be taken off before the Potatoes require "earthing-up." We often have a crop of Radishes off the forced Carrot-bed. Radishes, though sown at the same time, come much quicker into use. Shalots and Garlic may be planted soon ; if placed singly on the tops of low ridges, and three-fourths of the bulb covered, they will do well : any dry situation will suit them—6 inches apart will be wide enough. Chives may be parted and planted in the herb-ground. They are valued by some as a substitute for Onion-flavour. If it is desirable to raise Onion-seed, some of the best-

formed bulbs should be selected, and planted in good ground, with a good exposure, so that ripening early seed may be practicable : that which is ripened late is generally inferior, and often much is wasted. The same applies to Leek-seed growing. A bed or a few rows of Onions may be sown about the third week of the month for early use ; and if the weather is fine and the ground dry, and otherwise in order, by the last week of the month the main crop of Onions might be sown. When they are got in thus early, and other necessary attention given, they invariably do well ; but we avoid sowing, if possible, till we can secure a dry mealy surface, and on stiff ground we use fine dry soil from under cover, treading the whole surface thoroughly, then drawing drills about 9 inches to 1 foot apart. Very little covering is necessary ; an inch or less will do. The seed should be sown thinly and regularly along the drills. It is no loss to leave every sixth row unsown, to prevent breaking the tops when cleaning and surface-stirring are performed. Some still prefer "broadcast" and beds, which is, treading out alleys 4 feet apart, sprinkling the seed regularly over the surface, and covering over with soil from the alleys, throwing it regularly to right and left, then levelling with a rake, and beating the beds firm, or treading them well. We think this old system inferior in every respect to sowing in rows ; indeed we seldom use beds for anything now, preferring rows for everything. Young seedlings do not become so quickly drawn up, and cleaning is more easily performed. Parsnips may also be sown at the end of the month. Deep ground is necessary to secure fine straight roots ; but we find, when the soil is very rich and heavy, the flavour and keeping qualities are inferior to those grown on poorer and lighter soil. Rows drawn from 15 to 18 inches apart, and about 2 inches deep, will do ; sprinkle the seed in thinly, or place it in "pinches" about a foot or 14 inches apart ; cover it regularly, tread moderately, and make the surface fine with a rake, but avoid tearing up the newly-sown seed. Parsnips still in the ground may be lifted soon and allowed to become dry on their surfaces ; they may then be placed in a shed thinly, and some dry straw thrown over them.

Cabbage may be planted when the weather is open and mild ; they may be planted twice as thick as they are to remain ; every other head can be cut out for use, and a full crop allowed to remain. However, the smaller kinds can be planted more thickly than the larger sorts. Those which form nice hearts with few outside leaves are generally esteemed. When planting, make drills as for Peas, and plant the larger kinds a foot each way, so that when the main crop is left they will stand 2 feet apart each way. The quality of the ground is a guide for distance. In highly-manured soil the size of Cabbage increases doubly. In planting all kinds of plants, it is of great importance to press the

soil to the roots instead of the necks. What is called "hanging" brings premature seeding, or disappointment in some other form. A pinch of Cabbage may be sown under protection and treated the same as Cauliflowers; but this is seldom necessary where due attention has been given in autumn to securing a good plantation, and a succession of young plants in a sheltered position. A succession of Peas may be sown and repeated every two or three weeks—this can be regulated only by demand; a second early kind may be sown to succeed those that are to be planted out, or what may have been sown last month. Stake any Peas that are up, first drawing a little of the surface soil to them, to afford protection. Later in the season "earthing up" is not necessary. Broad Beans may be sown for a main crop; $2\frac{1}{2}$ feet apart will be wide enough for the rows, and 4 inches from set to set. Early Longpod and Mazagan will answer well. Radishes and Lettuce may be sown in sheltered early positions: protection with litter, &c., will be required in times of frost. Rhubarb and Seakale will require attention to keep up regular supplies. Rhubarb will now grow freely in any structure where a temperature from 55° to 60° can be maintained; cellars or outhouses will answer well, or a large pot or box placed over each crown in the ground and some warm manure laid above, will soon cause the crowns to start. Roots which have been lifted may be kept free from frost after they have been forced: they can be reduced and planted in prepared ground next month, protecting the crowns with dry litter; in two years' time the same roots would be again ready for lifting to force. The trimmings of Seakale-roots should be saved in a little sand, to form new plantations next month. Pieces about 4 inches long, planted 2 feet one way and 1 foot the other, would make useful roots for forcing in two years hence. If Mushrooms are only grown in sheds or open ground, thick coverings of hay or straw are necessary to keep in the heat and out frost. At the base of a wall facing the south is a good position for forming beds; the droppings should be thrown up sloping from the wall, and the whole bed made thoroughly firm; and when heat is moderate the spawn may be placed 9 inches or a foot apart, using it about the size of pigeons' or hens' eggs, and an inch or two below the surface of the dung is deep enough. Make the beds smooth, and spread 2 inches of good loam over the surface of the bed about a week after it is made, patting it firm and smooth with the back of a spade, then protect with the litter or hay. Walks may be turned, well trodden down, levelled with the back of a rake, and well rolled; this will keep them clean and smooth for a long time: gravel that does not bind cannot be treated so: such walks as have to be hoed and raked are always unsightly and unpleasant to walk on. Trees yet unpruned should be attended to at once, and the proper fastening

given, as formerly advised. Any appearance of suckers should not be neglected, but they should be cut off clean ; if only shortened, they would come up in greater force. Hard paths over the roots of trees may be slightly forked up and a good dressing of manure given ; but if the trees are vigorous, the less stimulant they receive the better. Peaches and Nectarines which have been unfastened and kept away from the walls may still remain as they are, but if their flower-buds are expanding from the mildness of the season, tying up cannot be longer delayed. It is very common to see these trees overcrowded with young wood ; that evil should be guarded against, as its effects are much against successful fruit-growing. When trees are very thickly studded with fruit-buds and the wood weakly, a good crop is very uncertain : to help this the buds might be well thinned out, leaving those most prominent standing singly. A boarded coping, projecting a foot or more from the top of the wall, is of great service by keeping the trees dry : these boards should be portable, so that they can be taken off in summer to allow the dews and rains to fall on the leaves. Old trees may be renovated by taking off a quantity of soil from the surface of roots and replacing it with good loam, crushed bones, and a little rotten manure well mixed. Where lawns are covered with moss and the grass inferior, and weeds likely to take possession, a mixture of lime, loam, and a little well-decayed manure thoroughly turned and broken, may be spread over the surface, and once or twice in the course of the month a rake may be used freely to level the dressing and to make it fine ; and if plenty of young grass does not make its appearance by the beginning of April, a dusting of seed may be given, making the surface smooth ; and when all is growing freely the roller may be used. Shrubberies should now be all clean, as leaves would keep blowing out all the season ; but if a dressing of any common soil can be thrown over the leaves to keep them in their place, the dressing would be of great service in promoting free growth. Deeply digging among the roots of shrubs is a very injurious practice. Rhododendrons, especially of the Nobleianum kind, will be flowering. If stakes and mats could be used to keep out severe frost and off heavy rains, shrubberies might be kept gay for a long time. Some of the early kinds of Rhododendrons have been more or less in flower here all the winter ; some of them (January 12th) are very fine, with hundreds of blossoms out and expanding. Pansies are also blooming freely ; Wallflowers, Polyanthus, and Roses are plentiful. The two latter are very useful in pots where glass protection is limited. Deutzias and Lilacs in pots, which have been previously forced, are making growth out of doors where litter has been thrown over them during late frosts. Lily of the Valley forces remarkably easy this season ; we have had a good supply since Christmas, by intro-

ducing a dozen or two of pots into heat every ten or twelve days. Few exotics have the charm that many of the most simple flowers possess. Sweetbriar forced into leaf at present is valuable for its scent : Violets are favourites with every one. The most of the above we see in the possession of some cottagers, who can be cheered with flowers in the short days as well as in summer. Dahlias to supply cuttings may be potted and placed in a little heat. When the shoots have grown an inch or two they can be placed in sandy soil, one in the centre of a very small pot, and plunged in a hotbed ; they will soon root if a heel for each cutting has been secured. All bulbs, Pinks, Pansies, and other hardy plants in pots, require the same care as last month ; plants to supply cuttings for bedding-out may now be brought on in heat.

M. T.



ANOTHER CHAPTER ON THE VINE.

THE culture of the Vine still appears to be a great mystery, and the more the subject is discussed the more mysterious it becomes, at any rate the wider do opinions differ. On the one hand we are told that Grapes, even Muscats, have been grown during the past year in the open air in England quite equal to hothouse Grapes, not to speak of those grown in that tempting marvel, the ground-vinery, or in orchard-houses. On the other hand, we read of elaborate architectural appliances being necessary for the purpose—drains for air and water, chambers for pipes and hot air ; indeed, a whole series of tunnels under the borders, to tempt the roots downwards, which again must be concreted to prevent the roots getting down. Then the superstructure of the vinery and its adjuncts are only limited in design and magnitude by the purse, ingenuity, or fancy of the architect. It appears that the humblest may grow Grapes with the simplest means, while the richest cannot always succeed with unbounded facilities. The culture of the Vine is like the cure of souls ; while the humblest and most rustic of sinners secures heaven in obscure and simple humility, ground-vinery fashion, others miss the goal even with the help of whole epics of architecture and holy machinery. Now the whole system, in both cases, is capable of defence. We will not quarrel with any of its parts, the whole is good ; various circumstances demand various appliances to attain an end in itself simple. We often hear reference made to the culture of the Vine as practised abroad, and we are sometimes directed to look to France, Germany, or Italy for lessons as to soil and pruning ; and it would be easy for the votary of any one mode of culture to pick out instances in support

of that system from the modes adopted on the Continent, but it must be borne in mind that even those systems are artificial, and adapted to suit circumstances of soil and climate; none of them are suggestions from nature.

The Vine seems cosmopolitan in the temperate zone; it turns up in odd places from Bury St Edmunds and Asia Minor to the forests of North America and the antipodes; the line of perfection hovering about the 39th degree of north latitude, if we take the quality of the juice as the criterion for the quality of the fruit. Bearing this in mind, we have a strong suspicion of English-made wine, pure and unadulterated, although we never tasted any. A little more southward, and we reach the range of the rascally *vin ordinaire*, so cheap about Paris as the northern limit to wine production, of course with fluctuation as to locality, as in the instance of the thin but sparkling Rhenish wines. Southwards to Bordeaux, and improved climate and claret appear; then over the Pyrenees to the land of sherry and port, until the climax of quality is reached in the home of Don Quixote.

4 We hear of the Vines on the Rhine being low bushes planted on the brashy hill-sides, which is necessary to get every advantage of the sun's rays in that northern limit; but that does not prove that Vines should always be planted in brashy soil. The roots must be exposed to much wet and cold in winter, and altogether their vitality must be low. Step a few degrees farther south to Lombardy, where we were lately told of the Vines being allowed to run high on poles, and planted on the flat land little removed from bog; indeed, the soil is often raised to keep the crops above the water-level, it being impossible to quite drain the low flat lands, reminding us of a peat-bog or the fens of Lincolnshire. But then the Vine enjoys a much higher degree of heat than on the Rhine, and being a thirsty plant under those circumstances, it has unlimited moisture at the root and a deep soil.

We hear also of the Vine growing to an enormous size on the low flat country lying between the Black Sea and the Caspian, a country of crooked rivers and inland lakes, which geologists say was once ducked under the sea, and barely lifted out again in the days of Noah, and has been in a draggled state ever since; too moist for corn, but the home of the Vine, where the heat and moisture are excessive in summer, the winter equalling our own in severity.

It is clear that the Vine luxuriates in a deep rich soil with abundance of moisture, and when in such condition can enjoy a very high temperature with abundant circulation in the air. It appears also that the Vine, growing in a temperate climate in a deep moist soil, does not suggest a very high degree of heat at the root at any time, until,

at least, the ripening process commences, when the ground may be supposed to be becoming exhausted of much of its moisture. Indeed, it appears the Vine will stand just as much cold at the root as any deciduous tree, and rain as well. Stagnant wet will injure it, just as it will injure the roots of a Beech-tree; the many aged Vines found throughout the country prove this. The one great want seems to be a higher and drier temperature in autumn to ripen the wood of the Vine under culture in this country, but with a constant undiminished supply of food at the root. Shallow dry borders are accompanied with red-spider, or even a very porous light border on gravel, though it may be deep; and red-spider means poverty in the plant. But to turn round and look at the subject through the medium of practice and its suggestions, what has all this got to do with the forcing of Grapes? it may be asked. Well, it has got everything to do with it. And it occurs to us, in the first instance, that it tends to show that the dry heat from hot-water pipes below a Vine-border is not just a rational, a natural, or necessary application. Looking at the Vine in its natural state, the roots do not appear to be decoyed downwards by earth-heat, but upwards by sun-heat to the surface, to be benefited by nature's annual top-dressing of fallen leaves.

We have forced the same vinery for eight years, and cut Grapes annually in April, sometimes on the first day of the month. The roots are, both out and inside, about equal, and no heat is applied, except what the surface of the border inside absorbs from the atmosphere of the house,—if we except also that the pipes are close to the surface of the border. No spade or fork has touched the borders for years, but an annual top-dressing is given in the autumn before forcing, the outside border simply covered with a foot of litter, and wooden shutters over all; and the results prove that no further underground heating is necessary. The inside border is so full of roots that it cannot be overdone with water when the Vines are full of foliage. We must, however, plead guilty to another house with the border entirely surrounded with pipes, though not underneath, and unconfined except on one side—the heat reaching the border in a lateral direction. We do not see much advantage from the arrangement, but indeed a greater tax on our attention in the matter of watering. From the facility with which the border can be dried in autumn, the wood at pruning is harder than that of the other Vines, and a Barbossa fruits as freely as the Hambros.

It is difficult to understand on what natural or physiological principle the aeration of Vine-borders is either beneficial or necessary; we suspect the whole thing is a misnomer, and that it is simply drainage. We should like it explained on what principle a current of air filtering

through a border, if it really does so, is beneficial to the roots; certainly we have nothing of the sort in any of nature's fruit-borders. We hold that the soil should be firm and compact about the roots of all fruit-bearing trees and plants, let it be Apricots, Pears, or Pines, and Strawberries, and even our Vine-borders, provided the soil composing them be of the proper mechanical texture; we abhor, of all things, to be potching in our Vine-borders, and a compact soil is incompatible with aeration, but not with drainage. What is called aeration we conceive would be of great benefit in a damp and dropsical climate, where the borders would readily get saturated and soapy under the influence of heavy rain-fall. But what would be said to "aerated" borders on a gravelly soil on the east coast, or even thoroughly-drained borders on any bottom, where, as a rule, much artificial watering is necessary? We know from abundance of experience that aeration, such as is found beneficial on the dripping west coast, would be a long way worse than useless on the droughty east coast, especially on light and naturally dry soils. Last season, in spite of mulching and all the watering we were able to apply, our borders got aerated very much more than we liked. Indeed, mulching, and especially watering, is a very heavy item of our labour, and we know from experience over more than one place on the west coast that such is superfluous. Large Grapes (we mean berries) are the result of plenty of feeding, either naturally through the medium of rain in a rich border, or by the artificial application of liquid in some other form. No doubt there are cases where, from the position of the borders naturally or artificially placed, aeration and heating would be almost a necessity—as, for instance, at Welbeck, where the borders are curiously sunk so low beneath the general surface out of reach of the sun's rays, and in an inland and elevated locality where the rainfall is abundant; but that only points more clearly to the superior arrangement of having the borders entirely above the surface and unheated, as at Garston. We are told that heated borders must be successful if well managed, and if they fail it must be the fault of the gardener. The bulk of the finest Grapes in the country are grown in unheated borders. We would incline to reverse the above charge, and say that the gardener who could not grow good Grapes without the questionable assistance of pipes for bottom-heat, had something to learn or unlearn. Inside borders for very early and very late Grapes are proved to be sufficient when well managed, for the Vine does not really require a high degree of heat at the root. For summer and autumn Grapes the outside border being elevated is also sufficient, which no one will dispute; but the elevation is rather to secure dryness in the border in autumn than for the advantage supposed to be derived from higher temperature.

One word about temperature in the atmosphere of the vinery. If the Vine is supplied with a steady and abundant supply of food and moisture at the root, a high indoor temperature is most beneficial, but it must be attended with free circulation of air. If the Vine is a gross feeder, it has also a wonderful digestion, and under high pressure will store up an amazing amount of stamina for future produce. That it will ripen its fruit sometimes in favoured parts of England, does not prove that it also ripens its wood sufficient to withstand, say a Crimean winter. What is the summer temperature of Malaga, or of the valley of Jericho, where the spies found the large clusters, or the borders of the Caspian? we suspect our vineries seldom approach those localities in their aggregate of summer heat or even moisture. And yet the Vine is not a tropical plant. We never could exactly understand putting the Vine to rest, or ripening its wood by exposing its branches to our summer and autumn weather. We may stop its growth by cold, but that is not putting a Vine to rest; and we suspect *that* is at the bottom of early-forced Vines starting prematurely in autumn. We find those Vines which go to rest with their wood matured with strong heat, have the least tendency to start prematurely; indeed, are the slowest to move under forcing. But if the Vine has lost its foliage through red-spider or any other cause, it is hopeless to put it to rest by the high-temperature process. Recourse, under these circumstances, must be had to cool treatment and a short supply of fruit the following season.

THE SQUIRE'S GARDENER.



NEW PLANTS OF THE PAST MONTH.

At this season of the year, Orchids mainly represent the new plants that come under notice. At the meeting of the Floral Committee on the 15th of December, Messrs Veitch & Sons received first-class certificates for *Pleione humilis* which, though not altogether new, is yet a very pretty species, somewhat paler in colour than the forms usually seen, and somewhat later in blooming; and for *Masdevallia candida*, a member of the group of cool Orchids, and, like the foregoing, not new, as it was shown in flower some seven or eight years ago. It is a rare species notwithstanding, and has pretty pure white semi-transparent flowers that are pleasantly fragrant, while as a plant it is a good grower and increases rapidly. To Dr Rogers, of East Grinstead, was awarded a first-class certificate for *Oncidium Rogersii*, perhaps the largest flowering *Oncid* ever seen; supposed by some to be a very fine variety of *O. bifolium*, but nevertheless specifically named as above. It has

flowers formed of an immense golden lip with a small orange-tinted column ; quite distinct in character, and very fine and showy.

A second-class certificate was also awarded to Messrs Veitch & Sons, for *Dendrobium Fytchianum*, a very pretty species, with an erect habit of growth, producing pure white flowers with rosy purple centres, very showy and appearing to be free blooming, as a small plant had two good spikes of flowers.

Besides these there were a good quantity of Orchids present, foremost among which was a splendid example of *Loelia autumnalis*, from S. Rucker, Esq., respecting which Mr Bateman said he had never before "seen so beautiful a specimen," and he regarded it as being even superior to *Loelia grandiflora*, which was exhibited last year by Mr Anderson of Meadow Bank. Hitherto growers of this magnificent species have had to contend with a tendency on the part of the flower to damp off ; and it would seem as if this example had been grown both in a drier and lower temperature than is generally allotted to it. Mr Rucker also sent a glorious specimen of *Epidendrum Vitellinum majus*, rich in rare beauty, and of especial value because of the durability of the flowers. Mr Bull had a plant of *Cypripedium caudatum* in bloom, a somewhat unusual circumstance at this season of the year, and it was thought not impossible to have it in bloom all the year round. Mr B. S. Williams had grand specimens of *Angræcum pellucidum*, having several pale-coloured racemes of flowers, a good-looking plant, and finely grown ; and *A. Eburneum*, var. *superbum*, with some fine spikes of bloom.

A new and very curious-looking *Richardia*, named *Melanoleuca*, from the Port-Natal district of Africa, was exhibited by Mr W. Bull, and received a first-class certificate. It was scarcely in good condition to judge of its merits, having the appearance of being prematurely forced into bloom, giving the foliage a weakly appearance. It had a short recurved sulphur-coloured spathe, deep purplish black at the base, and running upwards about three-quarters of an inch, and a small golden spadix ; the leaves are borne on pale-green and slightly hirsute stems, which are covered with small pale blotches.

A noble and beautiful Palm, named *Geonoma Seemanni*, was also exhibited by Mr Bull, and received a first-class certificate. It has a singularly handsome habit, and cannot fail to become a first favourite among these attractive plants. Mr Parker of Tooting exhibited a plant of his new *Ixora amabilis*, which is shortly to be distributed ; Mr Tanton, a plant of the notorious *Allamanda Wardleiana* in flower, and cut flowers of the same to show its winter-blooming qualities ; and Mr Bull, a flower of *Lasiandra macrantha*, by way of demonstrating that it will bloom from March till December.

A group of Weatherill's hybrid *Solanums* came from both Mr Weatherill of Hornsey and Mr B. S. Williams of Holloway. They are such marked improvements on the old forms of *S. pseudo-capsicum* and *S. capsicastrum*, that they will be certain to be much sought after for winter decoration of houses. In style of growth, as well as in shape of berry, they also vary; so there is not such a sameness about them as might be supposed. It will be remembered that last year some first-class certificates were awarded to three or four distinct types. A first-class certificate was awarded to Mr Weatherill for one of the finest forms of a pale-coloured single *Primula sinensis fimbriata* ever seen, and named Wonderful. The flowers were white, distinctly edged, and suffused with rose, and had a showy yellow centre; the pips were astonishingly large, measuring nearly $2\frac{1}{2}$ inches in diameter, and the texture unusually stout. It will form a fine strain if it can be perpetuated by seed.

R. D.



GARDEN REQUISITES.

STANDEN'S GARDENER'S AND AMATEUR'S FRIEND, AND FOWLER'S
INSECTICIDE.

IN the columns of a garden periodical, that, like the 'Gardener,' circulates so extensively among the amateur element of horticulture, there is a necessity for information in regard to the merits or demerits of many of those things that, comprehended under the general term "garden requisites," are pressed upon the notice of the amateur horticulturists by those whose business it is to vend them. At the head of this paper I have placed two of these things, the which I have tried for some time past, and to the excellence of both of which I can speak in terms of unqualified approval. The first named is a patent manure, manufactured by Mr B. Standen of East Greenwich, and sold in canisters in a pulverised form. It is so issued as that it can be adapted both to the requirements of hard-wooded and soft-wooded plants in pots; while it is so easy of application as to admit of its being done with the greatest facility. My use of it has been confined to soft-wooded plants, and succulent things, like Hyacinths, Narcissi, &c., in pots, and to many things in the open ground, and especially Roses. In applying it to plants in pots, it is simply necessary to lay a little of the powder on the surface of the soil, allowing it to be washed into it when water is applied in the ordinary form. It should not touch the foliage, as it would appear to be capable of doing it injury. Hyacinths and other bulbs, Pelargoniums, Fuchsias, Calceolarias, have become wonderfully invigorated under its influence—affecting foliage

and flowers alike in the most beneficent manner. Out of doors I have found it exercise a like influence for good on Roses. I have to plant on a clay soil, which soon eats up, as it were, any manure that may be applied to it, and in dry weather I have given at intervals a little of this manure, and the effect has been remarkable; increased vigour, fineness and richness of flower, and prolonged bloom have surely succeeded. I have also witnessed its beneficial influence on hard-wooded plants in an even more remarkable manner. A friend of mine purchased some old Orange-trees in boxes, that were, when they came into his possession, almost shapeless trunks, devoid of foliage, the leafless branches appearing to be quite paralysed for want of stimulus. I thought these almost barren trees offered a good opportunity to test the invigorating value of this manure, and a few applications converted mere trunks in due time into healthy trees, redundant with foliage, and they are now ornaments in my friend's conservatory. This is but one of several instances in which I have intently watched the issue of a trial of this agent, and saw in the result the most desired effects visible. Only a few days ago, when walking through the Ashburnham Park Nursery, at Chelsea, with the manager, Mr John Wills, late of Huntroyde Gardens, Burnley, I was much struck with the healthy appearance of a number of quarter-specimen Azaleas, in such vigorous growth as to present an aspect I had failed to perceive elsewhere. "That," said Mr Wills, "is entirely owing to Standen's Manure. A year ago those plants were in wretched condition. I gave them, during the past summer, several applications of the manure, just placing it on the surface of the soil, when it was carried to the roots at the time water was applied, and behold the result." I need scarcely say that Mr Wills is a firm believer in the merits of the manure. I can honestly commend it to the attention of all amateur horticulturists, especially as it is by no means extravagant in price.

Fowler's Gardener's Insecticide is a composition for the purpose of destroying greenfly, &c., on plants. This it does most effectually, and it is the only thing I use in my out-door garden for the purpose. A stated quantity is dissolved in boiling water, and when it has cooled down to a temperature of about 80 degrees, the shoots affected with thrip, greenfly, or aphid, are bent down and immersed in the solution, and immediate death is the result. It is also a real amateur's friend, and it is so easy of application as that a lady could do it readily. Whether it will also destroy the scale and mealy bug, I cannot say; it is asserted to do so. Be this as it may, as a destroyer of greenfly and its allies, it should be classed among the necessary requisites of an amateur horticulturist.

RICHARD DEAN.

THE ROSE IN POTS.

THE following remarks on the cultivation of the Rose in pots may not be considered entirely out of place at the present time, the object in view being to direct attention to the capabilities of the Rose as a pot plant for early forcing. Grand as is the royal Rose when in the full glow of her midsummer glory she dazzles the eye with her brilliant colours and loads the air with her grateful perfume, she possesses a beauty more sweet and delicate when forced in early spring: how fresh the foliage, how sweet the bloom, how we watch the first buds unfold, and how our lady employers hail their appearance! Their colour, form, and fragrance, all go to make them fast and first favourites with the ladies. The cultivation of the Rose in pots, although greatly improved, as seen at our spring exhibitions of last year, is still far from what it is capable of attaining to. That it blooms at all under the treatment it too often receives is a matter of wonder; for how often during the summer are they to be found in any and all situations save a suitable one? sometimes burned up in the sun and overrun with insects, or, worse still, stowed away into some corner as if to avoid both sun and air, until they may be wanted again to do duty in the forcing-house—at least such of them as may be likely to reward the forcing process with a few blooms—the vacancies in their ranks by death in consequence of such treatment being made up from the open borders, sometimes from the nurserymen. In the course of our own experience with pot Roses, we have found them amply to repay even a very little attention, but they must have this attention before coming into the forcing-house, starting in February with a few healthy plants which have been under cover all the winter (we prefer them on their own roots when intended for specimen plants for pot culture). We first cut away all the small spray and shorten the stronger growths to five or six eyes, endeavouring to lay the foundation of a well-balanced plant. If their pots be well filled with roots, give them a shift into a size larger pot, using a compost of one-half fibry loam, one-half old hotbed manure, with a little river sand added. Have them taken into the forcing-house, which may be a pit or early vinery; and where fermenting material is used to assist in breaking the Vines in the latter structure, we have found it answer well to plunge their pots in this until they have broken regularly into growth. If any other structure be available where they can have more light and air than in a vinery, it is to be preferred; if not, give them as light and airy a position in the vinery as possible. Dust the pots with sulphur, and should any become affected with mildew, have them removed from the others. When they have

made a few inches' growth, rub off any small weakly shoots that may be coming away; tie the shoots into position, and use the syringe freely, and by the end of March they will be coming into bloom, when they may be removed to a warm greenhouse. When done blooming, early in May prune them, as before recommended; give them a slight start in heat; when broken into growth remove them to any light airy place that may be available, carefully attending to them with water, giving them liquid manure twice a-week at least. Remove the flower-buds as they appear, and endeavour to get them into a good pyramidal form by tying the shoots as they advance in growth. They should be shifted when done blooming in April into a compost of good fibry loam, with a little leaf-mould and year-old cow-dung added. If they be wanted for early work next season they should be allowed to get drier by the end of September and be pruned, cutting them to four or five eyes; and weakly shoots cut away as before. If obliged to turn them out of doors during the summer, have the pots plunged and as much exposed to the sun as possible, making them secure against wind; have them all housed again by the end of September if possible. At this time a few may be selected that are showing for bloom, and, slightly encouraged, they will come in during November and December, and be of great service at that season. In this way they will be found to bloom finer each successive season, and in a few years produce results worth much more than the little trouble expended on the plants yearly. Insects must not be allowed to gain a footing on the plants at any period, but be destroyed on their first appearance by fumigation or otherwise. Some sorts are subject to mildew, especially when in a moist close atmosphere; in such a case give them a good sprinkling of sulphur, and keep any of them affected away from the others. We will not attempt to enter into the merits of varieties in this short paper, merely remarking that those sorts found to be of robust growth and free flowerers out of doors are good for pot-culture; that in the Tea section, most of which are delicate subjects out of doors in our northern clime, we have subjects of rare beauty treated in this way in pots. We have had plants of *Souvenir d'une ami*, *Devoniensis*, *Madam Villermoz*, &c. &c., in flower in December and January in a show-house among *Camelias*, *Cinerarias*, with other hard and soft wooded plants in flower, and the *Roses* were most admired by both employers and visitors. At this time of the year it is surprising how long the individual blooms last if damp is guarded against. In *Marshal Niel* the growers of pot-*Roses* have got a grand acquisition, being both free of growth and of flower. We would here venture to assert that there are very few employers who, if once

served with pot-Roses, in even moderate condition, during the early spring, but would look for them as eagerly during that season as for their pans full of gaudy Dutch bulbs or their glowing bushes of gorgeous Azaleas, among which the Rose may be placed and still retain her proud title of Queen of Flowers.

Should the above remarks be the means of drawing the attention of any to the cultivation of the Rose in pots who have hitherto neglected it, the writer shall think himself happy in being able to advance the interest of the Queen of Flowers in however small a degree. Where the plants are forced for cut bloom in large quantities, a different system may be pursued ; but we will not enter upon that in this paper.

SUBURBAN.

[We saw a plant of Marshal Niel grown on its own roots in a pot by an amateur last autumn, with seventeen splendid blooms on it, some of them 4 inches in diameter.—ED.]



HOW TO GROW ONIONS FOR COMPETITION.

Sow them in a forcing-pit or hot-frame about the beginning of February. About six weeks thereafter place them in 3-inch pots—one in each pot—filled with rotten turf and leaf-mould—two parts of the turf to one of the mould ; and grow them on in heat until about the end of April ; then transfer them to a cold-frame, and keep it close for the first three days, except during sunshine, when the higher ends of the sashes ought to be raised 1 or 2 inches, according to the heat of the sun. Shut the frame about four o'clock, so as to husband the heat, and thus a higher temperature will be kept up in it during the night. After the first three days, the weather being favourable, open the frame half an hour earlier every day, and close half an hour later. The sashes should at the same time be raised a little higher every day until they are removed altogether ; this may be accomplished in ordinary weather in the course of ten or twelve days, when the plants may be put out into a sheltered place, prepared in the following manner :—

In autumn take out a trench, say, 8 inches deep and 9 inches wide, or thereby, then raise the subsoil with a pick 12 or 14 inches deep to carry off the superfluous water. This being done, place the soil to be taken from the next trench on the top of the subsoil so raised. Continue to proceed in this way, raising the subsoil and turning the surface on the top of it until you have the quantity of ground required, then level the ground and remove the whole surface 1 inch deep, and place thereon a coating, 1 inch thick, of pure nightsoil, or, should such manure not be available, 2 inches of rotten cow, horse, or pig's dung

may be used ; after which spread the soil taken from the surface over the top of the manure. When thus prepared, give the whole a coating of strong salt in the proportion of 1 lb. of salt to 4 square yards. A little leaf-mould or rotten turf pointed into the ground immediately before planting would be useful in starting and rooting the plants. However, care must be taken, while this is being done, not to allow the manure to be buried too deep by the digging ; nevertheless, it should be thoroughly mixed with the soil near the surface. Dung buried only 2 or 3 inches deep will produce a much better crop of Onions than if it were buried 8 or 10 inches. Many may be disinclined to believe this, but they have only to make one fair trial to become convinced. Every horticulturist and agriculturist knows well that the roots of plants grow towards the manure ; consequently, if the manure is deep, the roots of the plants will be deep also, and will in that way, to a very great extent, lose the benefit of the influence of the heat of the sun. On the other hand, when the dung is near to the top, the roots will not be far from it ; and thus the plants will have all the advantages derived from the manure, as well as those from the heat and gases of the atmosphere, so essential to the growth of the plant. In planting out the Onions, knock them out of the pots, taking care not to break the balls. Plant them in rows, at least 14 inches apart and 9 inches between each plant, placing the under-side of the heads of the Onions on a level with the surface ; then put a stake to each of them, and draw up the earth with a hoe on each side of the rows, and thus form ridges for the Onions to grow in. When the heads begin to develop, the ridges may be levelled and the stakes removed ; then give another coating of salt in the proportion of $\frac{1}{2}$ lb. to 4 square yards. In dry weather give them a good watering at least once a-week. The water may be mixed with old urine in the proportion of one of urine to ten of water. In moist weather one of urine to five of water may safely be used. When urine is not to be had, $\frac{1}{4}$ lb. of the best guano may be sown every three weeks, on a wet day, over 6 square yards of ground, prepared as aforesaid. In the absence of rain, use the watering-can with the rose on, so as to clean the plants of the guano and wash a portion of it into the soil. Some prefer using the guano in a liquid state, but I have always been most successful with it when used in the way of top-dressing. Those who have not prepared their Onion-ground in the autumn, can do so yet in the way recommended, taking care to use no manure but that which is thoroughly rotten ; and instead of using 1 lb. of salt to 4 square yards, use now only half that quantity.

In proof of the advantages of growing Onions in the way referred to, I may mention that I grew one Onion of the Santa Anna Madeira

variety to the weight of 1 lb. 14 oz., and that a few of the same variety were shown by the writer in a collection of vegetables at the last autumn show in Glasgow, which measured upwards of 15 inches in circumference. The six Onions shown by him which carried off the first prize for weight from the Renfrew Show were of the same sort, and weighed 9 pounds. Those that carried off the prizes from the Glasgow Show in September last were raised in heat and afterwards transplanted, the varieties being Muncham Park, Blood-red, and Dan-ver's Yellow.

JAMES DOBBIE.

RENFREW.



NEW VARIETIES OF COLEUS.

TO THE EDITOR OF THE 'GARDENER.'

SIR,—The Coleus, raised this summer at Chiswick by Mr Bause, were this day sold by Mr Stephens, and the following is the result, as far as the biddings and names could be ascertained in the saleroom :—

1. C. Queen Victoria, very fine dark-crimson, yellow stripe; 5 plants, Mr Lee, 7 guineas.

2. C. Princess-Royal, much the same as No. 1, the stripe being narrower; 5 plants, Mr Turner, 15 guineas.

3. C. Princess of Wales, more purple and less yellow than the above; 1 plant, Mr Carter, 4½ guineas.

4. C. Her Majesty, leaves much larger, and yellow less distinct; Mr Carter, 6 guineas.

5. C. Albert Victor, the golden border more broad, leaves blotched with purple, a good specimen; 7 plants, Downie and Co., 15 guineas.

6. C. Prince of Wales, much like No. 5 without the golden margin; 4 plants, Mr Carter, 4 guineas.

7. C. Duke of Edinburgh, lighter than the above, and almost self-coloured; 6 plants, Mr Bull, 5 guineas.

8. C. Prince Arthur, a somewhat peculiar plant, yellow ground with reddish veins; 3 plants, Mr Carter, 3 guineas.

9. Princess Beatrice, not greatly differing from No. 8; 2 plants, no name given, 5½ guineas.

The plants were beautifully got up, and were much finer specimens than those of last year; but there was no great animation in the sale. There is very little chance of these, or those of last season, ever becoming serviceable as foliage plants for bedding purposes. There is as much difference in the appearance of a plant raised under glass, and one in the open ground, as there is between serge and velvet; they are very pretty toys, and give a fair allowance of amusing care and trouble to an amateur; but the advantage they will be to the "Trade," or the use they will be out of doors, has yet to be discovered. They are fine specimens of artificial production. To bring them up to a producible condition, and to keep them so, you must continue your attention; left to nature, they are always running out of beauty and out of bounds.

DOWN SOUTH.

10th December 1868.

IRELINE HERBSTII.

TO THE EDITOR OF THE 'GARDENER.'

SIR,—I have read with interest your observations on the cultivation of *Iresine Herbstii*, but I fear many may follow out your directions and still make but a sorry display. I have carefully watched the attempts made by men, eminent for their abilities as gardeners both in public and private gardens, but I have never yet seen this plant do justice to the care bestowed upon it in a fine neighbourhood, whatever care may be given to it. It is a sorry production in all the outdoor attempts about London. I was detained for an hour at Ashford, in Kent, this summer, and availed myself of the opportunity of going over Messrs Bunyards' garden. There I saw *Iresine Herbstii* in very great beauty. There was every advantage of soil and clear atmosphere: the colour was most lovely, and the form satisfactory. I could hardly recognise it as the same plant which I had seen when the locality did not suit. I should suspect that this plant, like *Coleus Verschaffeltii*, would be benefited by the check which plunging in a small pot affords. Admiring the plant much, I feel that, not having an open and clear atmosphere, I can do nothing with it even under your able instructions.

27th November 1868.

DOWN SOUTH.

**NOTES ON HARDY HERBACEOUS PLANTS.****PARASTRANTHUS.**

FORMERLY the few species that are included in this genus were considered *Lobelias*; and, as implied in the new generic name, an inversion of the parts of the flower is the base on which the new family is built up. The distinction is perhaps more technical than popular, but is sufficiently important and tangible, from a scientific point of view, to commend to us the adoption of the new name in practice in the garden. The species are few, and are neither striking nor showy, but are pretty humble plants, adapted for the margins of mixed beds or borders, and for rockwork. They have not hitherto been much cultivated in this country, owing probably to the fact that they are not hardy enough to endure with impunity the winter climate, except in a few favoured places in the south and west. Being natives of the Cape of Good Hope, they are, as most of the plants from that country which we cultivate in this, dependent on winter protection and a little aid from artificial heat in spring; for though they may survive the winter, vitality is so impaired that, except they are so aided, little progress is made in growth till summer is far advanced, and consequently the flowering period is postponed and curtailed. The best and surest method of preserving them is to take cuttings of them in autumn, and otherwise treat the plants as for *Lobelias* of the dwarf-bedding kinds. *P. luteus* grows to the height of 6 or 8 inches, with somewhat spreading prostrate branches, small, elliptical, toothed leaves, and yellow flowers,

which appear in June and July. *P. variifolius* is of rather larger stature than the preceding, but the colour of the flowers and the time of flowering are the same. *P. ilicifolius* is about 6 inches high, with pretty dark-green leaves suggestive of miniature Holly-leaves, so bristled are they on the margins with acute, almost spinose, teeth. The flowers are pink, and appear from May till September; it is, perhaps, the best and most distinct in the family. *P. unidentata* is about the same height as the last sort, but with violet or purplish blue flowers, appearing from May till August. *P. simplex* is also about 6 inches high, but is less branching than either of the preceding; the flowers are blue, and produced from May till August. This species is probably biennial; it is at any rate difficult, if not impossible, to preserve in pots over two or three years; young plants, however, grow and flower best, and should be kept in stock sufficient for the requirements.

TUPA.

Little generally is known of this magnificent family of Lobeliads in this country; *T. Fueillei*, Syn. *Lobelia Tufa* is the best known, and is to be met with about the Glasnevin and College Botanic Gardens, Dublin, and occasionally at Kew; and as seen in the border extending outside the houses at the first-named place in the months of September and October rising to the height of 4 or 5 feet loaded with its brilliant flowers, it will be admitted to have few equals. But, alas! it is only in such places and in such a border that it can be grown to perfection in the climate of this country without assistance in spring under glass, and the shelter of the same during winter. It is a native of Chili, and will not endure, in most localities, the cold and damp of even our ordinary winters, but it may be lifted in autumn and treated in all respects as recommended for the tall herbaceous Lobelias in a former article. It will not, however, accommodate itself so well to any inferior position out of doors, but must have the most sheltered and warm position possible. It forms a fine pot-plant, and well repays any amount of care and trouble either in pots or planted out that will bring it to perfection. In most parts of Scotland, it is to be feared, it would do little good except as a pot-plant; but in the south it might be turned to account as a subject for the subtropical garden. The votaries of that system may make a note of it, that they have no more gorgeous subject on their list. It combines the requisites of bold and striking growth, proportionally ample foliage, and a profusion of splendid scarlet flowers. In favourable places, too, it might be used with advantage in ordinary bedding-out for the centres of large masses, and for breaking the uniformity of long lines of borders. Several other species of this fine genus have from time to time been in this country, but with the ex-

ception of *T. Fueillei* and *T. Bridgesei*—the latter new and as yet untried—there is no other species in the country, so far as the writer is at present aware. The best after *Fueillei* are *T. salicifolia*, a large-growing sort, with bright red flowers, from Valparaiso; *T. blanda*, with pink flowers, from Chili, and about 3 feet high; and *T. purpurea*, about 18 inches or 2 feet high, from Valparaiso, with purple flowers.

W. S.

HORTICULTURAL CONGRESS.

WE are authorised to state that the Horticultural Congress, proposed some time since in our columns, will be held under the auspices of the Royal Horticultural Society, and under the management of a small select committee. Mr Thomas Moore will act as secretary. The Congress will hold its first meeting at Manchester, in July next; and should this prove to be successful, as it must do if gardeners and horticulturists will but give it their support and goodwill, then the Horticultural Congress, with its beneficial influences on gardeners and gardening, will become an annual institution. We shall in due time announce the arrangements which may be determined on.—*Gardeners' Chronicle*.

[We think such a meeting as is here proposed may lead to important results, especially if the subjects discussed are of a thoroughly practical character, and the papers or speeches, as the case may be, confined to a length that will not occupy more than fifteen minutes. Pure botany should be avoided, as should such subjects as are purely philosophical; for it must be remembered that nine-tenths of the audience is likely to be composed of practical men, who are not over-tolerant of subjects that don't directly interest them.—Ed.]

Notices to Correspondents.

[We deeply regret being again obliged to postpone many valuable communications.—Ed.]

CONSTANT READER, BUTE.—The hot dry weather checked the growth of your Carrots, and they got, as it were, set. When rain came in August, the earth was warm, and they made a second growth and split as you described. We have seen this happen in England under similar circumstances to those of last year. We fear the Jefferson Plum will not bear as a standard in Lanarkshire; the other two may.

PRECEPTOR.—The following Annuals will suit you:—*Clarkia elegans*, *C. pulchella grandiflora*, *Collinsia bicolor*, *Coreopsis tinctoria*, *C. Drummondii*, *Dianthus Heddewigii*, *Erysimum Peroffskianum*, *Hibiscus Africanus*, *Lupinus nanus*, *L. mutabilis*, *Schizanthus pinnatus*, and *Venus's Looking-glass*. Sow them on good soil late in May, thin out the plants well, and they will bloom when you want them.

JAS. W. W.—The following Fuchsias will suit you:—Blue Boy, Mrs Marshall, Lustre, Empress, Grand Cross, Roderick Dhu, Brilliantissima, Regalia, Neptune, Warrior, Starlight, and Blanchett. The following Pelargoniums:—Archbishop (Foster's), Charles Turner (Hoyle's), Empress (Foster's), Emperor (Foster's), Example (Hoyle's), Hermit (Foster's), King of Trumps (Foster's), Needle-Gun (Hoyle's), Rob Roy (Foster's), Sœur de Charité (Foster's), Sunbeam (Hoyle's), Victor (Hoyle's). And the following "Fancies":—Beatrice, Edgar, Ellen, Madame Vilda, Mrs Paxton Jervis, Mirella, Silver Mantle, Silvia, Tormentor, Undine, Virundiere, and Victor Hugo, all raised by Turner. These can all be had under the price you name. Of greenhouse plants there are but few that flower in August and September. Keeping off those you refer to, get *Statice profusa*, *S. Holfordii*,

Lilium uratum, *L. Chalcedonicum*, *L. giganteum*, and *L. longiflorum*. We have no more showy greenhouse flowering-plants for the autumn months than *Lilium*.

W. B., 24 C. Street, Bradford. — *Dipladenia amabilis* should be potted in sandy peat; the pot well-drained, and if placed in very gentle bottom-heat, so much the better. The climate that of the intermediate house.

AMATEUR HORTI.—If you plunge your *Geraniums* in the beds in their pots in your hot dry soil, they will require a good watering twice a-week in dry summer weather. If this is attended to they will flower well enough, but will not cover as much ground as if planted-out, and consequently a greater number will be required for each bed. Write direct to Mr P. Grieve, Culford Hall, Bury St Edmunds, and he will send you his book on *Zonale Pelargoniums*. Six-inch pots would be better, and rich soil.

THE MULBERRY.

“A SUBSCRIBER” in last month’s ‘*Gardener*’ wishes for information as to propagating the Mulberry; and why cuttings, which were taken from a fruit-bearing tree, and struck thirty or forty years ago, do not yet carry fruit, although they are now vigorous young trees.

The fact of their being so vigorous and healthy, no doubt, accounts in part for their unfruitfulness, and is probably the result of the cuttings having been taken from gross unfruitful branches near the ground or from suckers; and when plants are raised from these they are very little, if any, better than seedlings, which, like those of the Walnut, seldom perfect much fruit before they are forty years of age. The best cuttings are those taken from the most productive branches, near the top, and on the south side of the tree. If such branches have not been noted while in fruit, the next best criterion is a short-jointed and twiggy habit: from these take cuttings in the beginning of March, 6 or 8 inches in length, of the previous year’s wood, with a joint of two-year-old wood at the base; insert them round the sides of well-drained pots, and plunge in mild bottom-heat, failing which, they will strike almost equally as well in a shady border, though not so speedily. Many years may be gained, however, by adopting the rough-and-ready plan of striking whole branches, the thickness of an ordinary walking-stick. They should be taken off before the sap begins to move, otherwise the tree is apt to bleed excessively, trimmed into shape by pruning off the straggling twigs, and planted 18 inches or 2 feet deep. In very dry weather they will require plenty of water; and in due time these adult-cuttings will push away as if nothing had happened.

Grown in pots, and receiving similar treatment, the Mulberry (*M. nigra*) can be fruited at as early an age as the Peach.

R. D. T.

A GARDENER.—The dressing your friend has given his Pear-trees should destroy the scale. If it does not, let him, as soon as the leaves drop next autumn, dress them with a mixture of equal parts of train-oil, turpentine, and spirits of tar—taking care to avoid the wood and fruit-buds. We have killed the scale with this mixture, but it is severe on the trees for the first season after its application.

A SUBSCRIBER.—It is very difficult to eradicate white-scale from hard-wooded greenhouse plants such as yours. Try a few of the worst of them by dipping them in water, at a temperature of 100°, with the specified quantity of Gishurst’s compound in it.

PLANTING OXALIS.

SIR,—In answer to your correspondent, L. M. N. R., I beg to say that I think a bed 80 feet long would not, under ordinary circumstances, be too long for edging with the *Oxalis*, but it would depend a good deal upon the form of the bed and the position from which it is seen. A bed that can be taken conveniently in by the eye looks best.

Whether two rows of *Christine* will be sufficient will depend upon the size of the plants, but the following proportions will be found suitable:—20 inches of *Christine*, 12 inches of *Alyssum*, and 8 inches of *Oxalis*. Plant the *Alyssum* and *Oxalis* along the centre of the stripes they are intended to fill, peg them right and left, and take care to keep them from straggling into each other during the season.

The *Oxalis* should be planted from 6 to 9 inches apart in the row. Sow it in a box about the beginning of February, cover it with a pane of glass, and set it anywhere in a house or pit where the temperature is about 60°. It does not require bottom-heat. Prick it out in little tufts, in a cold frame or under hand-lights, at the beginning of April, and keep well watered till bedding-out time.

J. SIMPSON.

THE GARDENER.

MARCH 1869.



THE ROSE.

(Continued from page 55.)

CHAPTER VIII.—SELECTION.



TAKE a hot schoolboy into a fruiterer's shop, where the cheeks of the Peach and the Quarrenden Pippin are glowing like his own, where the bloom still lingers upon Grape and Plum, and where the "Good Christian" Pear of Williams (would that all who assure us of their sanctity were as free from sourness, as fruitful, melting, and juicy!) yields to his inquiring thumb. Bid him survey the scene, a pomological Selkirk, and then proceed to fruition. Or take young Philippos, a few years older, to some great mart of horses. Introduce him to the proprietor, with his pleasant smiling face, ruddy (from early rising, doubtless), his cheek and chin close shaven (few men nowadays shave so closely), hair clipped like his horses', fox galloping over bird's-eye neckerchief, cut-away coat with gilt buttons, and drab adhesive pants. Let him hear how this generous, guileless man has collected, without regard to toil or money, the best horses in all Europe, solely for the pleasure of distributing them at nominal prices among his favourites and friends. Oh, ecstasy! "the young gentleman" is permitted to know that he is himself a member of that blissful band—a Knight of Arthur's table. The good dealer has "just such another young 'un of his own," and will forthwith exhibit to his counterpart a splendid series of steeds, on which his lad has won the principal steeple-chases, and led the clippingest runs of the season. How their coats shine as the neat clothing

glides smoothly from their glossy quarters ! How they snort as they leave their stalls ! How proudly they elevate (I disdain that puny monosyllable, cock) their trim-cut, well-combed tails, and how genially the good dealer whispers to the young gentleman, with a kindly nudge and wink, "that's about all you'll let the field see of him, if you buys him, and gets a start." And suppose at this juncture you also whisper in the other ear, "try them, and take your choice."

Or go with his pretty sister to some jeweller's glittering store. Let him display to eyes far brighter than his diamonds, and with a tender grace of manipulation which tells how costly is his ware, casket after casket of lustrous gems. Then invite her to select her *suite*. Or take her to some gay emporium—woe to the man who shall cry "shop" therein, for fifty pairs of angry scissors would find swift way to his heart !—where, behind acres of plate-glass, and upon miles of counter, the rich thick silk stands up in pyramids, and the delicate aristocratic satin gleams like an opal. Ask the shopmen (I beg pardon, the *aides-de-camp*, or whatever may be their modern title) to educe their newest, most *recherché* robes, and beseech of Venus to choose.

Will there not be in these cases a delicious perplexity, an ecstasy of amazement, an embarrassment of riches ? Imagine to yourself this happy hesitation, and you will know something of my present sweet uncertainty. How am I to begin my selection of Roses ? It seems as though, gazing upon an illuminated city, I was asked to point out the brightest candles ; as though, where fire-flies gleamed by the million, and humming-birds glowed by the thousand, I was ordered to transfix with the entomological pin the brightest specimens of the one, and to adjust upon the ornithological wires the most exquisite examples of the other.

As to any scientific arrangement, ethnological, genealogical, or physiological classification, I am helplessly, hopelessly incapable. I have as "poor brains" for these studies as Cassio for strong drinks. The very words make my head ache, and I long to break them up as one breaks up, in wintry days, some big black coal with a poker. "I am no botanist," as the young Oxonian pleaded to the farmer who reproved him for riding over wheat ; nor do I envy, although I honour, him. I do not envy him, because, strange as it may seem, he is very rarely an enthusiastic gardener ; because I never remember to have seen a scientific botanist and a successful practical florist under the same hat. Wherefore I am content, when I put on my own "Christy," made for me by one who loves Roses, and grows them well, to confess meekly that it covers a skull void and empty of scientific treasures, but the property, I trust, of a true florist.

But how am I to begin with the Roses ? I fancy that I hear a hiss

or two, a shuffling of impatient shoes, as when too much preliminary fiddling goes on before the play. And here, positively, in the very crisis and nick of time, my doubt is dissolved, the knot is cut *ἐπιξυρῶ τρυχῆς*, upon the razor-edge of good-luck, and by an incident which sounds like a miracle. *The Rose makes answer for itself.* Yes, biting my quill, and beginning to think that the more I bite the nearer I draw to the stupidity of the bird which grew it, I hear an intermittent tapping on the panes of a window near. I am not startled, because this identical tapping has been going on for a good many years, whenever winds are high; but as I look up and see the cause, it seems to bring new sounds to my ears—a spirit raps distinctly on the glass, “*Begin with us, the*

CLIMBING ROSES.”

I obey at once the legate of my Queen. I lose no time in stating that the best Climbing Rose with which I am acquainted is Gloire de Dijon, commonly classed with the Tea-scented China Roses, but more closely resembling the Noisette family in its robust growth and hardy constitution. Planted against a wall having a southern or eastern aspect, it grows, when once fairly established, with a wonderful luxuriance. I have just measured a lateral on one of my trees, and of the last year's growth, and found it to be 19 feet in length, and the bole of another at the base to be nearly 10 inches in circumference. The latter grows on the chancel-wall of my church, and has had two hundred flowers upon it in full and simultaneous bloom; nor will the reader desire to arraign me for superstitious practices before a judicial committee when he hears that to this Rose I make daily obeisance, because—I only duck to preserve my eyesight. The two trees alluded to are on their own roots, but the Rose thrives stoutly on the Briar and the Manetti, budded and grafted, wherever Roses grow. Its flowers are the earliest and latest; it has symmetry, size, endurance, colour (five tints are given to it in the Rose-catalogue, buff, yellow, orange, fawn, salmon, and it has them all), and perfume. It is what cricketers call an “all-rounder,” good in every point for wall, arcade, pillar, standard, dwarf—*en masse*, or as a single tree. It is easy to cultivate, out of doors and in. It forces admirably, and you may have it, almost in its summer beauty, when Christmas snows are on the ground. With half-a-dozen pots of it, carefully treated, and half-a-dozen trees in your garden, you may enjoy it all the year round; and if ever, for some heinous crime, I were miserably sentenced, for the rest of my life, to possess but a single Rose-tree, I should desire to be supplied, on leaving the dock, with a strong plant of Gloire de Dijon.

As to treatment, although this Rose, like some thoroughbred horse,

will do its work with little grooming and scanty fare, it well repays that generous diet which I have previously prescribed. In pruning, take away all weakly wood, and you may then deal with the strong as you please. If you want to increase the height of your tree, "cut boldly," said the Augur, and low. If you desire short flowering laterals, you may have them, a dozen on a shoot.

I am inclined to award to Climbing *Devoniensis* the second prize in its class. To this offspring of, or, as we technically term it, "sport" from, the lovely Tea-scented Rose, *Devoniensis*, we may truly say,

O matre pulchrâ
Filia pulchrior !

for it has all the beauty of the mother, form, complexion, sweetness, without that tendency to rapid decline which the parent exhibits in our chilly climate. A tree kindly sent to me by Mr Curtis, of the Devon Nursery, Torquay, made shoots 10 feet in length the first summer after planting, and now covers a large space on a wall 18 feet high. It blooms here even earlier than *Gloire de Dijon*, and I gathered perfect flowers from it during the month of November last.

Keep a sharp look-out, when pruning, for wood diseased or decayed, because, although the Rose gave ample proof of its hardihood by surviving the trying winter and spring of 1866-7, the ends of its shoots and its young laterals are liable to be injured by frost; and all crippled limbs and unhealthy flesh should, of course, be amputated.

There are two Roses, I am well aware—two sisters of this same "most divinely tall" family—more beautiful than those which I have preferred before them. When we held our third National Rose Show in the Crystal Palace at Sydenham, the first of those exhibitions which have since been so popular in that grand creation of a gardener's genius, I remember that some of us were made almost angry by the excessive share of admiration received by one of these Roses. An anxious eager crowd jumped and jostled to get a view of it, reckless of each other's corns. I heard a remark from one visitor to another, a short man behind him, who seemed, I must say, about to clamber up the speaker's back,—“Pardon me, sir, but may I remind you that we are not playing at leap-frog?” What were they all struggling to see? There were long lines of lovely Roses—why this pressure always at this special spot? It was just as when, in our Royal Academy, and on the first days of exhibition, the visitors all make for one particular corner, because there hangs, so the ‘Times’ has told them, *the* picture of the year. And what was *the* Rose? It was Cloth of Gold *Noisette*—a box of it, sent by Mr W. Cant, from the neighbourhood of Colchester. Well, the most jealous could not dispute its supreme beauty. It was

certainly the belle of the ball. In its integrity, it is, I believe, the most glorious of all Roses. No true rosarian ever forgets the first perfect bloom he sees of it. "Even at this distance of time," writes Mr Rivers in 1867, "I have not forgotten the delight I felt on seeing this Rose in full bloom at Angers in 1843. Its flowers were like large golden bells." Why, then, have I not given it precedence? Simply because, were such a compliment offered, the Rose would scarcely ever be there to receive it. Because in this climate it is so rarely realised, that I do not remember to have seen it, *full grown*, more than three or four times in my life. Puny personifications and dreadful imbecilities arrogating the name I have met with frequently, but the grand gold goblet, to hold nectar for the gods, is seen but on state occasions—a chalice for the coronation of kings. It is "a shy bloomer," "wants a warm wall," "good for the conservatory," they tell us who know it best. And yet (so capricious is beauty) I have seen noble specimens of this flower upon the walls of a cottage five miles from my home, and the gentleman to whom the cottage belonged was never, I believe, more happy than when he came to dine with me, wearing in his coat a huge bud which he had begged from his tenant, and which resembled in size the egg of a turkey, or rather, in my eyes, of a roc.

Alas! this tree perished years ago. Its fate was the common lot of its race—to be cut down by cruel frost. And yet I would advise amateurs to do as I do, persevere in growing it. One year's harvest will be recompense enough for the ploughing and sowing of a decade. If other Roses boast of their fecundity, this may answer, as the queen of beasts to the fox, "My children are few, but they are *lions*." Try it on a south wall; try it on verandah and arcade (I have seen it flowering freely on the latter); try it budded on the Céline Hybrid Bourbon, which is also most congenial for Climbing Devonensis; try it on the Banksian and Manetti Stocks; try it on its own roots, protecting it during the winter months with some good thick surface-dressing. I do not recommend matting, or other material, which keeps light and air from the plant. A sickly unnatural growth is often caused thereby, which renders the plant more powerless than ever to resist its enemies—insects and vernal frost.

The other Rose referred to is Marêchal Niel. Since the time when, a baby in floriculture, I first began to "take notice" of Roses, more than twenty years ago, three new stars of special brightness have glittered in our firmament—Gloire de Dijon, Charles Lefebvre, and Marêchal Niel. The latter is, I think, the greatest acquisition, because we had, previous to its introduction, no hardy Yellow Rose, realising, as this does—in the wonderful beauty of its flowers, their size, shape, colour, fragrance,

longevity, abundance, in the amplitude of its glossy leaves, and the general habit of the plant—our every desire and hope. We possessed some approximations to Gloire de Dijon in our Tea and Bourbon Roses. Charles Lefebvre was a development of General Jacqueminot ; but of a hardy Golden Rose, more precious and more welcome a thousand times than those Golden Roses which popes have sent to favoured kings, we saw no harbinger. The beautiful old Yellow Provence was all but extinct. I have never seen it, except in the gardens of Burleigh —“Burleigh House by Stamford town.” The few splendid petals of the Persian Yellow only increased our *sacra fames auri*—the egg-cup made us long for the tankard of gold. Solfaterre had not depth of colour ; Solfaterre was faulty in shape ; Cloth of Gold was not meant to be worn out of doors, and was quickly tarnished by rough weather ; and even the Marêchal's own mother, Isabella Gray, had displayed such feeble charms that no one mourned her sterility. Suddenly, unexpectedly, she produced a paragon. I have not placed it at the head of the list, for the sole reason that I have not yet perfectly satisfied myself as to its capacities in this particular department—that is, as a Climbing Rose. I have not fully proved it, and I shall make no statement in these papers which my own experience has not taught me. Having grown the Rose, since its distribution, both in beds and on a wall—and this, I rejoice to say, in the fullest phase of its beauty—I believe it to be perfectly hardy, and likely to be the king of the climbers ; but until it has passed unscathed one of our severest winters, and then covered a large space with its exquisite Roses, I will say no more. A climbing Rose-tree is the one which should be least accessible to destructive influence, seeing that the sad signs of decay and death are more painfully and prominently displayed upon it, and the harm done less quickly repaired. The frost of Christmas Eve, 1860, killed Rose-trees to the ground which had covered my house for years. Would Marêchal Niel abide such an ordeal as that ? There is good reason for the anticipation in the following statement, which appeared in ‘The Gardeners’ Chronicle’ of January 19, 1867. The writer, Mr Godwin of the Rosarium, Ashbourne, Derbyshire, reports : “The frost here, in the valley of the Dove, on the nights of the 2d and the 14th, equalled in intensity that of the memorable Christmas Eve of 1860, when the thermometer fell some 6° below zero ; and at present it appears to have done its work nearly as effectively. The tender tribes of Noisette, Bourbon, and Tea Roses on the low grounds appear to be all killed. We are, however, delighted to see our old and valued friend, Gloire de Dijon, entirely unscathed ; and, better still, Marêchal Niel, the best of the Yellows, seems none the worse for the trying ordeal to which he has been subjected.” And again, in the same publication,

May 25, 1867, the editor, referring to a bloom of this Rose exhibited at Nottingham, remarks: "This flower was of the richest golden yellow, and measured 5 inches in diameter, the petals being beautifully cupped and symmetrically arranged. It is most gratifying to hear that this magnificent Rose is perfectly hardy, is an excellent grower, and blooms, when well established, in all situations."

There seemed to be at first some hesitation among our Rose-merchants as to the propriety of a union between this delicate beauty and that rough, wild vagabond, the Jolly-Dog Rose; and it was "sent out" generally budded or grafted upon the Manetti, or recently struck on its own roots, about the size of a toothpick. We have since discovered that, as fair damsels love stalwart knights, this Rose grows and blooms most vigorously when budded upon the Briar. This is the best stock for it, so far as my experience goes; but there is another with which it mates most happily, and of this I had last season a somewhat curious proof. Be it known, then, and *apropos* of mates, that the lady whom, on an interesting occasion, I endowed with all my worldly goods, does not avail herself of my matrimonial munificence with regard to my Show-roses, but contents herself during the exhibition-season with the produce of certain trees exclusively appropriated to her. One morning, towards the end of May, I listened with amused incredulity to her announcement, that she "had just cut a beautiful bloom of the Marêchal;" and being perfectly sure that there was no tree of that variety in her collection, and no expanded flower on my own, I ventured to ask, with affectionate sarcasm, which of her plants had distinguished itself for life by this grand supernatural victory? The prompt answer was—"Gloire de Dijon: go to my room and look!" I went, expecting to see some abnormal specimen of the flower, and I found in all its loveliness, Marêchal Niel! Thence to the branch from which it came, and then the mystery was explained. I had mentioned to my gardener, in the preceding summer, some remarks which I had read from Mr Rivers the younger, recommending the Gloire as a stock for the Marêchal. He had tried the recipe, as I now advise my readers to try it, and had first perplexed and then pleased me with the prompt success of his enterprise.

Lamarque, the parent of Cloth of Gold, well deserves a place on some sunny wall, growing very rapidly, and being one of the earliest Roses to charm us with its refined and graceful flowers. These are large and full, the outer petals of a soft pure white, the inner of a pale-straw colour.

None of the Roses which I have just described are classified in the catalogues or by writers on the Rose among the Climbers; but I have ventured so to consider and to commend them, for the obvious reason

that they are as capable of climbing as Jack's Bean-stalk, and that they produce more beautiful Roses than the other nomad or wandering tribes. These are the Ayrshire, the Evergreen, the Banksian, the Boursault, the Multiflora, and the Hybrid Climbing.

The Ayrshire and Evergreen Roses—it should be, *Evergreen if the weather permit*—have many claims upon our grateful admiration. If we have an ugly, red-faced, staring wall, which seems to glory in its ugliness, they will hide its deformities more quickly than any other Rose or any other creeper with which I have acquaintance. Only give them a good start, as you give an Irishman “jist a hint” of whisky before you send him on an errand; and, however adverse the position or the aspect, off they go like lamplighters. With their shining leaves, and their pretty clusters of white pink-tinted flowers, they will flourish where no others can grow—in the waste places of the earth, in damp dismal corners, under trees and up them, if you wish. Upon the blank wall of two new rooms, having a western aspect, I planted Rampant sempervirens. Owing to the proximity of another wall and of intermediate shrubs, he was not even gladdened occasionally with a few kindly smiles from the setting sun; and though I gave him plentifully good soil and good manure, I left him hoping against hope. The first year he did little. I thought he was dying in his dreary dungeon, but he was only planning his escape; and out he bolted the next summer, making shoots like salmon-rods, some more than 20 feet long. “Rampant” must have had adult-baptism, and was well named by his sponsors, always reminding one of a Lancashire anecdote, how a poor client waited upon one Lawyer Cheek of Manchester, with a long bill in his hand, and sighed, as he put down the brass on the table, “They dunna call thee Cheek for nought.”

Other members of these two families are alike successful in surmounting hardships—*e.g.*, among the Ayrshires, Dundee Rambler, Queen of Belgians, Ruga (with its faint odour of the ancestral Tea, which intermarried, it is said, with the Roses of Ayr), and Thoresbyana—raised a few miles from my home at Thoresby, the seat of Earl Manvers, where fruits and flowers have the skilful care of a gardener (Mr Henderson) who deserves the name; and among the Evergreens, Adelaide d'Orleans, Félicité Perpetuelle (who would not desire to have this Rose upon his house—this

“Rose looking in at the window,
And chasing dark sorrow away,”

as it is written in one of the most touching and most teaching of our ballads?), Myrianthes, and the two Princesses, Marie and Louise.

These Roses are also most appropriate for covering bowers in the rosarium, or arched entrances leading to it. They are very effective upon banks and slopes, which they seem to flood with a white cascade of Roses; and budded upon tall standards of the Briar, they may be soon trained into Weeping Roses—into fountains of leaves and flowers.

Would that Burns had gazed and written upon the lovely little Banksian Rose. He would not have esteemed the wee modest daisy one iota the less—he was too true a florist for that; but he would have painted for us in musical words a charming portrait of this pocket, or rather button-hole, Venus—this *petite mignonne* flower, which would make a glorious bouquet for Queen Mab's coachman, when she appeared in public, as queens do in fairyland. Or it would make a sweet bridal wreath, as I remember to have seen it once in my childhood, for a doll's wedding—a happier one, I would hope, than that to which I refer, when the bride on her way to the altar fell prone from our tall rocking-horse, and broke her bridal nose. The Banksian Rose is indeed

“A miniature of loveliness, all grace
Summed up and closed in little;”

and both the Yellow and White varieties—the latter having a sweet perfume, as though it had just returned from a visit to the Violet—should be in every collection of mural Roses. The plants should be on their own roots, and those roots should be well protected during the winter months. It cannot be warranted perfectly hardy, but with careful mulching there is scarcely one frost in a lifetime which will kill it. It may be injured even to the ground, but it will come up again with wondrous rapidity. A tree of mine, which half-covered my house, perished in 1860-1, but it was not sufficiently guarded, because I thought it safe; and “’Tis better to have loved and lost than never to have loved at all.”

Under favourable circumstances, the growth of this Rose is most luxuriant. A French writer on Roses tells us of a tree at Toulon which covered a wall 75 feet in breadth and 15 to 18 in height, and which had fifty thousand flowers in simultaneous bloom; and specimens may be seen in our own gardens and conservatories which repress any unbelief. The trees should be pruned when they have flowered in summer, so that a fresh growth of laterals may be well ripened before winter, and bloom in the ensuing spring.

Rather more than twenty years ago, Mr Fortune sent over a batch of Climbing Roses from China, and from one of them, named Fortune's Yellow, great expectations rose. It was described by a rosarian at Seven Oaks as being “nearly as rampant as the old Ayrshire, quite

hardy, covered from the middle of May with large loose flowers of every shade—between a rich reddish buff and a full coppery pink—and rambling over a low wall, covering it on both sides about 20 feet wide and 5 feet high.” Mr Fortune himself described it as most striking in its own country, with flowers “yellowish salmon, and bronze-like ;” but it did not succeed in my garden, and as I find it in only one of the catalogues, I fear it has all but succumbed to our ungenial climate.

Although the Boursault Rose is called, from its habitat, *Rosa Alpina*, it certainly has not the agility in climbing which entitles the Roses previously discussed to membership in the Alpine Club. The old crimson *Amadis* is very beautiful when the evening sun is low, and the soft light rests upon its glowing flowers, but *Ichabod* is soon written on its leaves ; and then the Boursault, always excepting *Gracilis*, is not a graceful tree. They may be trained both to climb and droop, but they have long ceased to perform in my rosarium either of these evolutions. There are better Roses.

Nor am I acquainted, so numerous are the candidates having stronger claims, with any garden which has space to spare for the *Multiflora* or for the Hybrid Climbing Roses. They are disappearing from *the lists* (as fair ladies do when no combatant wears their glove in his helmet), and I sigh to count the happy, happy years which are gone since I laid the Garland, as an *Immortelle*, upon the tomb of Madame D’Arblay.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

THE PEAR.

(Continued from page 62.)

HORIZONTAL training is perhaps the simplest mode of all, and is the one which we have seen to be in most general use for the Pear about all old places. A considerable number of old Apples may still be seen trained after this fashion, but as a rule it is seldom used for them now. It is, however, still in very general use for the Pear, and, when well done, looks very neat. The first pruning of the maiden tree is exactly the same as for the fan—viz., cut over about one foot from the ground, leaving three nice plump buds, one on either side for the branches, and one right in front for the leader. The second year, if the side-shoots are good and well ripened, I would not recommend them to be cut at winter pruning-time, but simply be laid in at an angle of about 45° to encourage the future growth of the branches ; for, if they are cut, what-

ever portion of the shoots is removed is simply thrown away, as no side branches are required to spring from them as in the case of the fan; and, consequently, the cutting back in the one was to encourage the formation of branches, while the refraining from doing so in the other is intended to have an opposite tendency. The leader must, however, be cut back to whatever distance is intended to be between the branches—viz., if one foot is the distance, cut the leader back to that, endeavouring, if possible, to have the buds situated as formerly, one on each side and one on the front. Next year, at pruning-time, the same course is pursued with regard to pruning, and so on every year until the wall is filled up. The branches, left at an angle of 45° the first year, are brought down to 25° the second, and to their permanent position the third; and this course is also pursued during the whole time of forming the tree, the reason for which has already been given (see page 61, February number).

As already stated, we do not think this so good a method, for various reasons. It does not look so pretty, nor yet does it produce better or more certain crops than the fan, and, to crown all, it takes much longer time to fill up a given space. Take, for example, a wall 15 feet high, which is a good average height, and thus it will be seen a tree trained after this method takes fifteen years from the graft ere it reaches the top; and supposing each tree was planted 24 feet from its neighbour, 360 square feet of wall will be thus devoted to the use of one tree alone. At the end of fifteen years, however, the tree reaches the top, and if all side branches have grown equally strong, and granting that each shoot increased its length by $1\frac{1}{2}$ feet every year, it will still take eight years more before the whole space intended for the tree is occupied, making it thus twenty-three years old before it fulfils the expectations of the planter. In the case of the fan, however, it is quite different, as will be seen by looking at it in the following way:—By the fifth or at most by the sixth year, all the branches required to fill up the given space will be formed, and if we allow that the furthest from the top is 12 feet, it will thus be seen that in eight years more the wall will be filled up if they grow at the rate of $1\frac{1}{2}$ feet per annum, the same as we have allowed for the horizontal. By this calculation we have to add six and eight years, which makes fourteen, and subtract it from twenty-three, which leaves nine years in favour of the fan.

There are several other modes of training Pears upon walls, one or two of which may be here noticed—viz., the herring-bone fan, the oblique, and curvilinear; but these, as well as many other forms, are modifications of the two which I have already described, and, with the exception of the curvilinear, which is sometimes very useful where it may be necessary to have recourse to it in the case of a very strong-

growing variety—where it might tend more to balance the tree and induce an equal distribution of sap throughout its branches—we consider them no improvement upon the fan and horizontal. The herring-bone fan is nothing more than a tree pruned as if intended for a horizontal—its lower branches being laid along the bottom of the wall, the next laid at a slight angle, each branch having more of an angle than the one below it, until the branches near the top are running upon a pretty sharp angle, resembling the disposition of the branches in a fan-trained tree, while the upright stem is retained and cut yearly, the same as in the horizontal. Oblique training is identical with horizontal, so far as pruning is concerned, while the branches are all trained permanently at any angle from 25° to 45° . This method has this fault, that a considerable portion of the wall is left entirely without branches towards the bottom. The curvilinear is certainly worthy of notice in such cases as have already been indicated, and may be done in the following manner:—Cut the maiden tree over about 18 inches from the ground, leaving two good buds at the top, one in front for a leader, and the other to form a branch either to right or left—whatever direction it is most likely to suit. This leader may be laid in straight to the wall for 1 foot, the remaining 6 inches being drawn about 3 inches from the straight in the direction the bud for the upper side-branch indicates. In spring, when the buds have started, rub off all the eyes below the two spoken of to the place where the leader goes off at an angle, where a strong bud ought to be left to form a branch for the opposite side. In the following year prune and train in the manner already directed for horizontal trees, cutting the leader about 1 foot from the upper branch, and laying the branches in the same way as recommended for the horizontal, by bringing them down year by year till they all run on a level. The leader is to be treated year by year as it has been for the first until the wall is filled, when it will have a far more imposing appearance than a regular horizontal, as, besides having the twisted stem, the branches will be alternate all the tree over, from bottom to top. The principal object in view by this mode of training is to check the rapid rush of sap to the upper branches of a tree to the detriment and loss of the under ones, and this twisting of the stem has that tendency, as the cellular tissue is to a certain extent broken and wounded.

It is almost superfluous for us to enter upon the various modes and modifications adopted for the Pear in the open garden or orchard. Every cultivator has a mode of his own, which he is sure to consider one of the best, if not the *very* best, extant. All the different methods may, however, be reduced to three general principles—viz., the pyramid, the dwarf-stemmed standard, and the tall-stemmed standard.

The Quince stock is the only one which forms, as a rule, a real

pyramid. Other stocks may be used, but, to keep them in proper form, the knife will be much required in winter, and the thumb and finger in summer. Much wood which should go to form fruit-bearing branches will, *for appearance' sake*, have to be sacrificed. If the Quince stock is used, little or no winter pruning will be required—a little attention in summer with the thumb and finger will do all that is necessary. If we suppose our tree a maiden, with a good strong shoot $2\frac{1}{2}$ or 3 feet long when planted, we cut this back to about 1 foot 9 inches or 2 feet, according to taste. If we want branches down within one foot of the ground, 1 foot 9 inches will be long enough, but as a rule 2 feet will be better, as few people care for the branches being nearer the ground than $1\frac{1}{2}$ feet. In spring, if the buds start below where wanted, rub them off; and if any of those left appear too vigorous for the rest, bend them down to a stake and pinch out the point after it is about 12 inches long. By thus using the finger and thumb in summer—encouraging the weakly and depressing the strong—very little work will be left for the knife in winter, save reducing the branches to their proper lengths. The main stem ought to be trained to a stake in an upright direction, but should not be pinched unless it is growing too strong, and robbing the under branches, in which case it may be pinched after it is about 20 inches in height. We do not, however, recommend this unless absolutely necessary, as it has a tendency to start the young buds intended for next season, and which, especially in Scotland, would not ripen, and consequently would be lost. In winter, cut the leader down to about $1\frac{1}{2}$ feet from where it started this year, and shorten the side-shoots to about 1 foot at the base, reducing their length to about 3 inches at the top. Year after year the same course is to be followed until the tree arrives at the desired height, when pinching in summer, with a little application of the knife in winter, will keep it in proper form and bounds. As a rule, from 6 to 9 feet is quite high enough for trees worked upon the Quince stock, while those upon the Pear stock may be allowed to grow from 12 to 16 feet. Trees upon the Quince do not require root-pruning, but should be rather encouraged, as they never incline to penetrate too deep, and they also have a tendency to form a superabundance of flower-buds, which root-pruning would only help to encourage. Those upon the Pear will require it regularly, as already indicated in treating of wall-trees; and this rule holds good, no matter what form of training is adopted.

Dwarf-stemmed standards are generally upon the Pear stock, as are also the tall-stemmed standards. Dwarfs include all trees with a stem from 1 to 3 feet—tall all from that up to 5 feet, beyond which no standard ought to have a stem. If the tree has been grafted near the ground, and made a good maiden shoot, it ought to be cut back to

about $1\frac{1}{2}$ feet in winter, which will make it a fine height for a dwarf. In summer, according to its strength, it will form from three to six branches, which, if nicely disposed, may be shortened a little in winter, leaving the buds at the point looking in the direction in which branches are wanted. Should they have a tendency to grow too erect, it would be as well to tie them down a little, placing them equidistant, so as to form the groundwork of a nicely-formed tree. No further instructions upon this point of management can be given. The cultivator must use his own judgment, striving in all his after-management to spread the tree as much as possible to get every branch in its proper place, and when once there to keep it there, inducing it to grow as erect as possible—never allowing two branches to cross each other in growth, and endeavouring, as far as possible, to have each branch about 1 foot from the other. If due attention is paid to the training, in the course of ten or twelve years a handsome tree, covering about 5 feet all round the stem, with from eighty to ninety branches about 6 or 7 feet high, will be formed, which we consider quite high enough where look and usefulness are both considered. A tree trained in this method will bear more and better fruit than many trees which appear double their size, and are full of cross and ugly branches. Suppose every branch of 6 feet in length is allowed to bear 3 lb. of fruit, which many may be inclined to say is a very little crop, but which nevertheless is quite sufficient, it will be found that, if there are ninety branches, the total crop will thus be about 270 lb.; besides, the fruit will be both larger and of better quality on account of the distance between the branches, which allows a free circulation of air, as well as exposing the whole to the free action of the sun. Tall standards are just managed much in the same manner after the stem has arrived at the desired height. They are more adapted for orchard than garden culture, however, and are generally allowed to grow to a considerable height. Nice trees can be formed upon stems 3 feet high, which appear in the distance like large globes. No regular rule can be laid down for their production—the cultivator must use his own skill and knife in order to produce the desired effect. In fact, this may be said of all orchard trees. As neither cuts nor letterpress can properly illustrate them, a man must have seen the operation performed, and helped to perform it himself, before he can with confidence attempt it. There are many other forms of training which might be spoken of; for example, the vase, the vase-pyramid, the balloon, &c. &c.; but the greater portion of them are more intended for look than utility, and as our object in writing these papers has more reference to the latter than the former object, we will content ourselves by simply naming them.

We need not here make any reference to the pruning and training of espalier Pears, as the course to be pursued with them is exactly the same as for wall-trees. We may state, however, that the Quince is the best stock, and that we give the preference to horizontal training for this purpose. Espaliers are seldom more than 6 feet high, and, if a tree is planted every 16 feet, the whole space will be filled up as rapidly this way as by the fan—say, ten or twelve years—and will be more easily trained whether the wood or wire be erect or horizontal.

It often falls to the part of the gardener to have a lot of old trees placed in his hands, with instructions to try and renovate them. This is not an easy matter to accomplish, and ought never to be undertaken unless the trees are worth the labour and the undertaker is pretty sure of success; because, if he attempt and fail, he not only disappoints himself, but also his employer, making him rather sceptical about his abilities, and distrustful about any future suggestions he may make regarding any improvement about the place. Before coming to any definite conclusion regarding the practicability of renovating old fruit-trees, there are various things to consider. First, examine the tree all over, to see whether it is infested with scale, aphis, or any of the many insects which are its enemies, and also whether it be free from canker or not. If any or all of these, as is sometimes the case, abound, renounce at once the idea of doing anything with it, as such a tree will take years of toil and trouble before the evils are overcome, by which time a young tree would be into bearing and producing better fruit. Secondly, should the tree have none of the evils above enumerated, the cultivator must not leap all at once to the conclusion that the tree is worth renovating, but should proceed to examine the roots, which are at once the mouth and true fountain of existence, and, having carefully dug right round the tree, ascertained its condition. If he find that the roots stretch downwards into the bad subsoil, and outwardly for 20 or 30 feet, exhibiting long "carrot" roots, without any fibrous rootlets, let him at once relinquish all thoughts about it, except to have it removed to the rubbish-heap. If, however, the tree should have become unproductive owing to a portion of its roots having permeated too deeply into the subsoil, while another portion appears healthy and good, with plenty of good young rootlets abounding within a radius of 10 feet of its base, and if, as I have already said, the trunk and branches are pretty free from their enemies, the tree may be operated upon with hopes of success. This operation may be performed any time from October till the end of March, but we prefer doing it pretty early. Let all the branches, if a wall-tree, be undone and tied up into little bundles, which may be loosely hung to the wall for convenience, as well as for safety. Cut a trench right

round, at a distance of 10 or 12 feet from the trunk, to whatever depth good roots are expected; thereafter take four-toothed steel forks, and commence carefully to shake the soil from among the roots into the trench, and, if possible, endeavour not to cut or hurt the bark in the operation. Go round and round regularly until all the roots are laid bare; and if, as I have indicated, there are roots penetrating the subsoil, let these be cut off with a sharp hatchet. The tree may now be removed out of its bed altogether and set to one side; thereafter proceed to remove whatever roots may have been left in the soil, as they might—nay, would—prove injurious if allowed to remain. If it can be had, I would recommend fresh soil to be procured for every tree handled in this way, and something of the quality we shall hereafter recommend when speaking of the formation of borders. Failing this, however, the next best shift will be to procure a quantity of soil from the best plot in the garden, replacing it with the soil from the Pear border. If the border has not been concreted, or had something of the sort done for it, which will not be the case in such a one as I have described, it would be very advisable to procure a few rough flags, which may be laid at a depth of $2\frac{1}{2}$ feet from the surface, and if they can be built or cemented together, so much the better; and as every fruit-border ought to have a good drain running along the box, let these flags slope in its direction to carry off the damp. The soil may now be brought and put into its place. We premise, however, that it has been well incorporated with good rotten dung of some sort—old mushroom-dung, if not burned or destroyed, being the best—to the proportion of 1 to 10 at the very least, with an addition of lime and charcoal where it can be had. This mixture being placed in the hole to within a few inches of its level, let the tree now be made ready for replacing. Examine every root carefully, and wherever hurt in the operation of lifting, let it be removed back beyond the wound to the first good rootlet. Cut all the points back in the same way, and remove all those having a downward tendency. This being done, place the tree in its position, spread the roots equally and in every direction, and proceed to fill in the soil round the trunk, and, as the operation proceeds, lift and shake the tree, so as to get the soil into the many crevices which are sure to abound near the neck. After this is done, begin to cover the roots towards the extremities, not throwing it in like filling a drain, as I have seen it done, but let the workman stand in such a position as, by one sweep of his hand, the soil from the shovel shall fall gently, and in such a way as to help to stretch the roots in an outward direction. After the soil is all on, a gentle press with the foot may be necessary, but if it is in the least degree *wet*, the less “tramping” the better. Cover the

whole over with 5 or 6 inches of good stable-dung, and hang the bundles of branches to the wall, and the operation for the present is finished. In the course of three or four months, after the soil has had time to subside, and all danger of "hanging" is over, the tree may be permanently fixed upon the wall. If during the first summer the weather is dry, liberal waterings may from time to time be administered to much advantage. Manure-water of no sort should, however, be given, as the tree stands in the very same position as an animal recovering from a protracted illness; and we are all aware that the medical practice is to bring the patient round by degrees, and then give him the best food to build up the system. Let us in like manner do the same to the vegetable kingdom. Let the plant or tree show good signs of recovering strength before many stimulants are provided for it. During the first year the tree will probably show but feeble health, but the second it ought to be pretty strong, when, if watering is necessary, manure-water may with much advantage be applied. The third year, in all probability, there may be a crop of fruit, and the tree, if properly attended to, will continue to be fruitful and healthy for many years to come.

JAMES M'MILLAN.

(To be continued.)



CULTIVATION OF ROSES ON THEIR OWN ROOTS.

As the season is come again when plenty of good ripe cuttings are to be had of all sorts of Roses—and generally at the pruning-season a great portion of their heads goes to swell the rubbish-heap in the shape of prunings—prepare a piece of ground, of any light, sandy soil, upon a south border. It does not require to be over rich, as the Roses will remain on it for twelve months to complete their growth; and many of them will make from three to four shoots, and from 2 to 3 feet long. The distance apart may be 12 inches between the rows, and 4 inches from cutting to cutting. In taking off the cuttings, select those with the ripest wood. Get as many with heels as you possibly can, although many will strike equally well by cutting them across at an eye with a sharp knife. The cuttings need not be any longer than from 5 to 6 inches; if made shorter, they are apt to be thrown out with the frost. During winter it is a matter of little consequence whether the leaves are left on or not. I have put in batches of cuttings at pruning-time in the spring, and secured upwards of seventy per cent. A north aspect behind a hedge is as good as anywhere.

As this sort of cutting takes a long time to heal over, the buds must not be too prominent when the cuttings are taken off. Insert them firmly into the ground with the dibbler, and leave them for the winter. I have never done it, but I believe a mulching of some light material would be beneficial in preventing the frost from heaving them up; at all events, when the severe frosts are all gone, let them be firmly trod with the feet to make all secure. Water, and keep them free from weeds, during the summer months.

This day I have lifted a fine lot of well-rooted plants. A selection will be made for pot purposes, and the rest planted out. Twelve months ago I potted a large quantity from the same ground. I kept them in a cool house until the beginning of February, when they were introduced into a gentle heat, with plenty of light, where their buds came on slowly. I may remark, when they were potted, that the shoots were not pruned as usual, merely coiled round three or four sticks, when, like a young Vine, the buds broke regular the whole length of the shoot. I must admit that they did not flower all alike, but the majority of them had from one to two dozen Roses on each plant, and gave a good succession of flowers from April to the end of May. When they had finished flowering, they received a liberal shift into larger pots, with a good sound loam, road-grit, and some well-decomposed manure, and were finally placed out of doors, to stand upon coal-cinders, to prevent worms working their way into the pots through the hole at the bottom. When they had filled the pots with roots, they had an occasional watering of liquid manure, which increased their growth very much. Part of them are being introduced into gentle heat, to bring them on for another season as required. The border has been deeply dug again for another batch of cuttings, and they are being put in as time admits.

JOHN MILLER.

WORKSOP MANOR GARDENS, NOTTS,
November 23, 1868.



HINTS FOR AMATEURS.—MARCH.

CULTIVATORS who know the value of "March dust" will not lose any time in forwarding any garden operations still left undone, and be ready to take advantage of the first dry weather suitable for seed-sowing; there is so much to do (all at once) this month. If the weather should be very wet, and otherwise unfavourable, it is better to wait a little than to tread on soil which will become battered and unfit for seed-sowing. It is necessary with some soils to use a board for stand-

ing on, and to draw the drills and cover them in as the work progresses. This is the case in low-lying localities, and where the soil is of a heavy tenacious nature. Covering small seeds deeply is an evil to be guarded against. The greater care taken with sowing and planting, the cultivator is the more likely to be rewarded by success. About the middle of the month is a good time to sow on a dry border a pinch of Brussels Sprouts, Savoy, Kale, Cabbage, Cauliflower, Snow's Broccoli, and Granger's autumn Broccoli seed. Beds can be prepared by making a smooth surface, treading out alleys every 4 or 5 feet apart, and sprinkling the seed over the surface, then slightly covering it with a little earth from the alleys, finishing with a rake, leaving each kind correctly labelled. We, however, prefer drills, drawn 9 inches or 1 foot apart, and sowing the seed thinly in them. When the plants come up, they are not so readily drawn up weakly. But it is of great importance to their wellbeing if time can be afforded to prick them out a few inches apart, to keep them sturdy till planted out finally. We always make two or three sowings of the above. Though the latest are often weakly plants, they are useful to plant up space as it becomes vacant; and where failures were frequent in many places last season, late-sown Kale was of great value for "filling up." Cauliflower in handlights should now have extra plants taken out, with all the roots and soil they can carry, and be planted in well-prepared ground, sticking a few Evergreens round each plant to break cutting winds. Placing flower-pots over the plants at night is often practised with good results. The plants left under the handlights should have the soil well stirred among them, and any decaying leaves and weeds cleared away; and a little rotten manure, placed over the surface, will be of great service. The lights may be turned round or taken off in mild weather. With a little attention given to airing and shutting up before the sun is quite off, the plants will make rapid progress and come in early. When good Cauliflower is so much valued, Cauliflower plants may be planted out from frames 2 feet apart. Those who found time to pot them will now have little difficulty in planting out. Sudden checks must be guarded against, as premature hearting would be the result. Carrots for drawing young may be sown on a warm border and covered slightly with sandy soil. Parsley for a main supply may be sown round the edges of breaks, or for forming the edges of narrow paths, thus taking up little valuable ground. A pinch sown thinly on an early sheltered spot may be of service where the old crops may go quickly to seed. Onions may be sown as soon as possible, covering the seed thinly and treading firmly afterwards, as advised last month. Leeks may be sown in a bed for transplanting, when they can be handled properly. They may also be sown in a trench, to be earthed

up after thinning the crop. Abundance of manure is necessary to produce fine Leeks. A small piece of early Dutch Turnip may be sown, and if where protection can be given, they will likely be longer in running to seed: shallow drills, 1 foot apart, will be suitable. Wood-ashes, sprinkled over the surface, will keep slugs in check—all small seedlings will require to have some kind of protection against slugs. Turnip-slices laid round about the borders, &c., and turned up every morning, will secure great numbers. Netting may be required to keep off birds. Red lead, sprinkled over the seed, keeps birds in check. Radishes and Lettuces may be sown, and if where protection in frosty weather can be given it will be advantageous. Litter, spruce branches, and laurels, are often used in severe weather. Spinach may be sown between the rows of Cabbage or other crops. Where Peas are grown in breaks, Spinach is generally sown between the rows. Peas may be sown at least twice in the month. To make successions of second early kinds, Champion of England and Dickson's Favourite will be difficult to beat, either for croppers or fine-flavoured Peas. If the ground is shallow and sandy, the seed may be covered over in the rows with rotten manure or leaf-mould, and well mulched when they are up, otherwise mildew is likely to appear. Stake those which may be up, and prevent them from falling over. Broad Beans for a full crop may be sown; plenty of room is necessary if the ground is good. We generally find from $2\frac{1}{2}$ to 3 feet between the rows not too much, and from 3 to 6 inches between the seeds—Johnstone's Wonderful and Broad Windsor are good kinds for present sowing. Asparagus will spring early this season; and planting may require attention by the end of the month. Full particulars for Asparagus culture have been given in the 'Gardener' so lately, that we need say nothing about that delicious vegetable here. Plant Horse-Radish in deeply-trenched ground, where manure has been turned into the bottom; 2 feet between the rows and 8 inches between the root is not too much on good ground. Plant Globe Artichokes when suckers can be had. They make a good succession to the main plantation—3 feet by 2 will be wide enough—but a single row is more easily managed. Jerusalem Artichokes may be planted similar to Potatoes; as a rule they do much better in single rows than when in large plantations—in the latter they do not, except the outside rows, get the advantage of sun and air. Single rows make also a good blind. Potatoes are sprouting unusually early this season, and planting need not be longer delayed, as the seed growing out of ground only wastes their vitality. If the kinds are strong growers, they require a greater distance between the rows—say 2 feet between the rows for the stronger kinds, and 1 foot between

the tubers. Some of the smaller-leaved Kidneys we plant not more than 18 inches between the rows. Where ridges have been thrown up to the frost, the width at which the Potatoes are to be planted, it answers well to place a little kindly soil in the ridges—such as leaf-mould, old mushroom-dung, or old potting-mould—planting the Potatoes on it, and forking down the ridges, carefully burying the Potatoes 4 to 6 inches; and if they should come up while there is danger of frost, a little litter may be used for protection—earth drawn over the young tops will answer for a time. Herbs may be divided, if necessary, and fresh plantations made. Mint and similar kinds do well to be lifted, parted, and planted singly (in well-worked ground), just after they have sprung an inch or so; others established may only require surface-cleaning, and top-dressing with clean rich earth. Celery may be sown for the general crop, from the middle to the end of the month. Fine soil, placed a few inches thick on a mild hot bed, answers well to sow the seed on. Excessive heat, or allowing the young plants to become dry at the root, would, in most cases, cause the crop to run prematurely to seed, and be unfit for any purpose. Checks from cold to heat are productive of the evil. Any early seedlings up, and fit to handle, may be pricked out 4 inches apart, on a bed prepared with a few inches of rotten manure placed on a hard surface; over the manure is spread an inch or two of light soil. The young plants are planted neatly, fastening the fine roots to keep them firm, but not squeezing; they should be allowed to hang their full length in the soil. Protection with glass is necessary at this early period, giving air gradually, till the plants are of a size to endure full exposure on mild days. Drawing them up is a great evil to be guarded against. If Basil is wanted, a little seed may be sown in a pan, using free healthy soil, and not covering the seeds very much. Cucumbers and Melons may be begun this month in the smallest places. A bed prepared with good stable-dung, and a few leaves to keep it lasting, is as good a way of growing them in summer as any other; hot-water pipes, reducing labour and being more cleanly, are preferable for the workman. If dung-beds and frames are used, let the heat be regular and the atmosphere pure before the plants are planted out—a heat of 70°, and 10° or 15° higher, with sun and air on, will bring the plants on rapidly at this season. If the bed becomes dry towards the afternoon, a sprinkling with tepid water over the whole surface, and shutting up with sun-heat at a temperature of 85°, will promote active growth. If the steam is of a brown colour, and hanging in drops from the lights, it is a sign that it is impure; and plants, if they live in it, cannot make healthy growth. Small quantities of soil, in a warm state, laid up to the roots as they appear through the hills, is better,

for a time, than filling the structure full of soil at once. Melons do well in strong loam and a little decayed manure well mixed. If much dung is allowed, disease is more liable to attack the plants. Cucumbers do in a lighter soil than Melons—a good portion of turfy loam should be used. Near the sides of the bed the soil may be made very firm, as, when very loose, more of the growth of the plants is given to wood and foliage than fruit. Melon soil, all over the bed, can hardly be made too firm, and sloping a little from the stems of the plants. If ridge-Cucumbers are to be grown, they could be brought on early in a frame, which could be gradually taken off in summer, and used for any other purpose. The usual system of growing ridge-Cucumbers and Gerkins may be delayed till next month, as the plants seldom do much good if planted out before the end of May. New Zealand Spinach may be sown in a pan or pot to raise plants for planting out. The end of the month will be early enough. A frame is valuable in most places to raise such plants as the above, besides Vegetable Marrows, Capsicums, and Tomatoes; both of the latter may be sown at once.

Nail and otherwise finish fruit-trees as formerly directed. Though bushes and fruit-trees should have been planted long ere this, they may still be got in; a little extra care of drought will be necessary, as March is sometimes very trying for all kinds of newly-planted trees; and where staking has not been well done, strong winds will do much damage both to root and branch. Trees on walls, &c.—such as Plums, Apricots, and Peaches—may require disbudding early this season, as unfortunately most things are very early. When taking off the wood-buds, considerable judgment is necessary, so that the best-placed shoots may be left as near the main branches as possible; any that are growing right out from the tree should be taken clean off, and enough of wood left to furnish bearing wood for next year. The wood and leaves should fully develop themselves without being crowded. There are generally more failures from overcrowding than the reverse.

The propagating of bedding-plants may be proceeded with as rapidly as possible. Verbenas may be put in a high moist temperature, in rather sandy soil. They will soon root, and if potted and replaced in heat till the roots take with the new soil, they can be placed in a close frame, and air increased as the plants begin to grow. If green-fly make its appearance, a little tobacco smoke will kill it; confine the smoke for a time by placing mats over the frame. Calceolarias and other more hardy plants can be placed in a sunk pit or frame if pots are scarce; it does well to turn the plants into rough soil, where they will root freely, and can be lifted out with balls at planting time. Chrysanthemums may be propagated now, by cuttings or by dividing the old

plants. A cold frame answers well for them ; if much heat is used they become drawn up and weakly. Abundance of air and light is necessary for all hardy plants, especially if they are to be turned out into the open ground. Bedding-plants, and others for ornamental purposes, cannot have too much air, when weather will allow, to secure bushy strong plants for turning out. Hardy annuals may be sown in the borders ; some of them make a good show, though not so lasting as most of the perennials. If annuals are wanted late in the season they may remain unsown till May.

Bulbs of all kinds, Carnations, Pinks, Pansies, and such like plants in pots, must now have all the air possible, using the lights to keep off heavy rains ; however, mild showers, when required, would be a good watering, but no damp should be allowed to settle about the plants. Auriculas may have their side shoots taken off if they are not wanted to increase the stock ; in their absence the main flowers would be finer. If top-dressing has not been given with rich compost, it should not be delayed. Tender annuals should now be sown in a little heat. Balsams, Cockscombs, and similar plants would do well for a time in a cucumber frame. To grow them well, especially Balsams, they require bottom-heat and plenty of air given as they grow. When they grow to their blooming size, they will do in an ordinary greenhouse, but require to be taken gradually from a warm to a cold structure. All plants will require to be more frequently watered—however, guarding against extremes, and let it still be given in the mornings. More roots and more active growth are a sign that more moisture is necessary. When plants are potted give plenty of drainage, especially to any requiring peat, such as Heaths ; place compactly over the bottom a few large pieces, then a quantity of small ones, making a level surface ; keep the soil well packed round the ball in process of potting. Roses may now be pruned, cutting out weakly growths and shortening strong ones ; fork over the mulching and make the beds tidy. Strong shoots may be pegged down to fill up.

M. T.



THE KITCHEN-GARDEN.

No. III.

(Continued from page 72.)

THE GLOBE ARTICHOKE.

THIS vegetable, though seldom or never met with in the gardens of cottagers, is one that is very much esteemed at the tables of the wealthy. It is supposed to be a native of the countries which sur-

round the Mediterranean, and of the islands of that sea. Most likely it is a maritime plant, for it is one that thrives well in soils in which there is alkaline matter ; and it is said that it thrives amazingly in the Orkney Islands, where it receives liberal doses of sea-weed. We have frequently observed that it grew with unusual vigour in rather peaty soils, or where it has received liberal dressings of decayed vegetable matter, such as leaf-mould. Generally speaking, the Artichoke is to be met with in some out-of-the-way corner of our gardens not very well exposed to sun and air. It is, however, a mistake to plant it in such situations, as it is a plant which usually yields most productively on a warm open exposure, and does best in a warm season. It has been represented by some as perfectly hardy. This, however, does not coincide with our own experience ; and on consulting an old author, we find it stated that "once in the seventeenth century, and again in 1739, the Globe Artichoke was all but totally destroyed in Britain, and a fresh stock had to be imported from the Continent, where it is much more generally esteemed than in this country."

The cultivation of this vegetable is exceedingly simple ; at the same time some considerable care and attention is required to keep up a succession fit for table from June to November. In making a new plantation, a piece of good open dry soil should be chosen, and liberally manured with decayed leaves or thoroughly-decomposed vegetable-mould : trenching to the depth of 2 or $2\frac{1}{2}$ feet is desirable, and then another dressing of manure dug into the surface. As soon as the old stools have grown from 8 to 9 inches, which is generally from the middle of April to the middle of May, according to the season, is the time to plant. The old stools should have the soil turned back all round them, so as to enable the operator to select the strongest offsets round the stool, and to remove them with a portion of their thick perennial roots and some of the young fibres also. These offsets are then planted in triplets at a yard apart, the soil pressed firmly about them, and well watered immediately they are planted, and kept watered, should the weather be dry, till they get a good hold of the soil. If this be performed in April with good strong suckers, they produce globes in August. It is a good plan thus to plant a few rows every spring, and do away with as many of the old stools. It keeps up a succession of good healthy stools and of globes. Old plants will, it is true, continue to be productive for many years ; but, after a certain time, the globes are not so fine. When old or established plants begin to grow, they should be regularly looked over, and the weakest growths or offsets removed entirely ; for, if left to grow up a thicket, no more globes will be produced, and those that are produced are weakened by the crowd of foliage. Six or eight suckers to a stool are quite sufficient.

To keep up the succession in September and October, a few rows should be planted a month later than recommended above; and if removed carefully with good roots, shaded with a few boughs, and well watered, they soon begin to grow, and yield globes at a time when they remain longer in good condition, and are most esteemed when other second-course vegetables are getting scarce. In some cases we have attained this end by merely lifting a few rows late in May with balls, cutting away some of the roots, without dividing the stools, and replanting them. This checks the growth and retards them.

As soon as the globes are cut the stems should be cut away, and the leaves removed as they decay. To protect them from severe frost, a thick mulching of stable-litter, or leaves covered with litter, is sufficient. In laying it on, place it close up round the hearts of the plants. In spring this dressing can be dug into the ground about the roots when all danger of severe frost is past.

THE JERUSALEM ARTICHOKE.

This is, to the uninitiated, a most uncouth and uninviting-looking vegetable; but it is wonderful how palatable and tempting-like a good kitchen artist can make it before he passes it up-stairs. Seeing that—like the sun-flower, to which it is allied—this subject is from America, we might wonder why Jerusalem should be applied to it. The name, however, is a corruption of *Girasole*, meaning sun-turning. Being a tribe to be found only in large gardens, and so very easily cultivated, we do not intend to say much of it. It requires to be grown very much in the same way as a Potato. It makes the finest tubers in a dry loamy soil enriched with leaf-mould. Instead of letting it be on the same piece of soil for years, as is often done, to get fine tubers it should be planted afresh every year in rows a yard apart and 10 inches or a foot between the sets, and 6 inches deep. When the tops have withered they can be cut over, and some litter spread over the ground, and the tubers dug up as required; or they may be lifted and pitted, or otherwise stored, like Potatoes. The end of February or early part of March is a good time to plant. Choose large tubers instead of small ones, as is sometimes practised.

B E E T.

This much-esteemed esculent is supposed to be a native of the warmer countries of Europe, and to have been introduced into this country by the Romans. According to chemical analyses, Beet contains much more nutritive matter than any other root excepting the Potato. Nearly twelve per cent of it consists of saccharine or sugar matter, and the

Red Beets are more nutritious than the White—the former containing three times more gluten than the latter.

The main crop of Beet should not be sown till the end of April ; for when sown earlier, and especially in dry seasons, it is apt to run to seed, and the result is small worthless roots. In most families it is required early in autumn for salads, and to meet that demand a small sowing is generally put in the first week in April. The ground that suits it is an open sandy loam, moderately enriched with rotten manure. Should the weather and ground be dry, vegetation is hastened and more certain by steeping the seed in water for twenty-four hours. Sow in drills 16 inches apart, and when sufficiently large to thin, they should be left about 8 inches between plant and plant.

Where the soil is naturally heavy, slugs are sometimes great pests to Beet just as it comes through the ground ; and it is a good plan, under such circumstances, to cover up the seed with some light sandy soil, and to dust with dry soot and lime as the plants appear above ground.

Beet is rather tender, and subject to injury from frosts, and requires to be lifted and stored in time to be secure from such. In lifting and storing it great care is necessary, so as not to break the skin, or cut the tops off too close, which causes bleeding and leaves the tuber much deteriorated by loss of juice and colour. They are best stored in sand in a cool dry place, or they may be pitted, but protected thoroughly from wet. They are best and most conveniently kept in a root-room.

The varieties of Beet are now numerous, and many of them are very much alike. The varieties we prefer are—Barret's Crimson, Henderson's Pine Apple, Notting's Dwarf Red, Dell's Dark Lopped. Barret's we consider preferable taken as a whole, where one variety only is selected.



ANANASSA SATIVA VARIEGATA

Is in many people's estimation the prince of decorative plants for a dinner-table ; but their being grown, as we generally see them, in large pots, debars them entirely from that place of honour, and their utility is thus ignored.

Nobody but those who have seen them has any conception of their beauty, grown, as we grow them, in 6-inch pots in Sphagnum moss and a dash of silver-sand and pounded charcoal.

We have in our mind's eye a garden that possessed at one time upwards of twenty such plants, that did duty in all manner of ways—from the top of a spiral onyx-stone column to a Majolica vase in a bedroom. The common greenhouse Lycopod plays an important part

on the surface of the pots, and in no way affects the health and happiness of the variegated Pine-apple plant. Warm soft water, copiously applied daily in summer and weekly in winter, and being placed on inverted pots on a stone over the hot-water pipes, are its chief wants. To obtain handsome uniform recurved-leaved stocky plants, a pair may be grown on in a pinery in the usual way, and fruited.

The crown or crowns thus produced—and I have seen as many as seven on a fruit, potted as I have recommended, and grown on in a careful manner—make perfectly noble plants. In truth they may be termed real furniture-plants. It is erroneously supposed there are two varieties of this plant, but the crimson hue sometimes seen is entirely due to good cultivation. As a rule, crowns produce high-coloured foliage, and suckers light. The variety called *Porteana* is not to be compared to the one under notice.

H. K.



NEW VARIETIES OF FRUIT.

In the article on "New Varieties of Fruit" by Mr Shortt, in the December number of the 'Gardener,' there are more mistakes than those mentioned by "J. G. B." The Royal Ascot Grape is not truthfully described. It is a strong-growing very prolific variety; the berries are large, jet-black, and covered with a dense bloom. Three finer bunches of Black Grapes I have seldom seen than those with which Mr Standish gained the second prize at the Regent Park Botanic Society's Flower and Fruit Show in June last. They were beat by a very fine dish of Golden Hambros, but there were at least twenty dishes in competition, and amongst them some good Muscats. I have also seen it at Ascot, as well as at other shows; I also saw it in Edinburgh at the exhibition in September, and was surprised that Mr Standish sent such a poor example of it to the Scottish capital. I grow the Grape here, and have come to the conclusion that it is an excellent variety to cultivate.

Prince of Wales Peach is described as having very large fruit; it has carried good crops of fruit here the last two seasons, medium size only, of a distinct flavour. Mr Rivers has raised some good Peaches, but I do not think Prince of Wales is one of them.

Princess of Wales is a first-rate Peach, but Mr Shortt is in error in his description, as it has very large flowers, and ripens in September, at the same time as Walburton Admirable, to which the fruit bears a close resemblance; the flowers are quite different, however. Dr Hogg makes the same mistake in the 'Fruit Manual;' he says it ripens in the end of November.

Is *Desse Tardive* a new Peach? I saw a large tree of it during the past season trained to a wall at Hallinbury House in Essex, and Mr Spring, the gardener there, told me that it was one of the finest late Peaches, and that he had gathered fruit off it 12 inches in circumference.

JAMES DOUGLAS.

LOXFORD HALL.



THOMSON'S STYPTIC.

THIS is undoubtedly a most valuable preparation for stopping bleeding of the Grape Vine. About two years ago I had the misfortune to have an early Vinery frozen when in flower, and coming in to bear their first crop. The sap at that stage was in full flow; in fact, all going on as well as could be desired. Seeing the mischief was beyond recovery, I determined to cut down the Vines to the bottom, and bring away fresh rods. Accordingly I did so, and bleeding severely followed. But not dismayed, I perseveringly applied the styptic. Rubbing it in with finger and thumb, the force of the sap burst through the large bubbles several times. Eventually it obtained the mastery and held its own, and no more bleeding was to be observed during the remainder of the season. Very soon afterwards the Vines broke, and such monster breaks. I trained two rods from each, which quickly reached the top and down the back wall of a fifteen-foot-wide house. They ripened well. Before I left the scene of this disaster, in October last year, several Grape-growers called, saw, and heard the above. All were unanimous on the merits of the styptic. One high authority on Vines (well known to the Editor) declared he never saw finer Vines in all his experience.

This being the season, many a Grape Vine will receive its annual pruning and dressing. I would strongly recommend all interested in their culture to have a bottle by them. When bleeding shows itself, either in planted-out or pot Vines, they have an unfailing remedy.

ALEXANDER TEMPLE.

SALTMARSH, YORK.



THE BENEFICIAL RESULTS OF TRENCHING.

IT is well-known, or at least should be, to all gardeners, that trenching is to the soil one of the most beneficial of gardening operations.

The past summer will long be remembered as one of the hottest on record, and has proved to my satisfaction that deep stirring of the soil is the best remedy against the evil effect produced on the various crops in the kitchen-garden by a long and severe drought.

When I entered my present situation twelve months past, the kitchen-garden, 3 acres in extent, was in a most uninviting condition. My employer told me it produced little the previous summer, weeds excepted; and I had ocular proof, in the luxuriant crops of groundsel and other weeds, some of which had recently underwent the operation of mowing, that his information was not to be doubted.

Such being the case, I concluded that trenching would be the best means of getting rid, to a certain extent, of the enormous number of weed-seeds that necessarily must occupy the surface of the soil. I therefore determined that all the space not occupied by permanent crops should be trenched. However, circumstances over which I had no control occurred, and prevented me carrying out my intentions. I was therefore obliged to be content with getting one-half trenched, the remainder being dug in the usual way.

Now, if I had been able to have had the whole trenched as intended, I would have had no means, during the past summer, of comparing the difference between the crops on the trenched and those on the untrenched quarters. As it was, I had an excellent opportunity of noting the beneficial results arising from deep cultivation. The various crops on the trenched portion succeeded entirely to my satisfaction, whilst those on the untrenched were in most instances a decided failure.

It is unnecessary for me to describe here the mode of trenching, as it is known to all gardeners ; but I may state that, in this instance, I had a quantity of decayed leaves wheeled on to the quarters, and, as the work proceeded, laid with a paring, about 3 inches in thickness, of the surface-soil at the bottom of the trench. I was very particular in having the paring placed as low down as possible, for the reason previously alluded to—namely, the getting quit of weed-seeds.

Let me, in conclusion, urge every gardener who wishes for good and tender vegetables, to have, at least, a portion of the kitchen-garden trenched every year.

J. H.



ON THEORETICAL INSTRUCTION.

PREMISING that a certain amount of education is necessary before any trade can be learned, it does not follow that a sound theoretical education is either necessary or of primary importance to a young gardener. The thing of first importance to him is useful knowledge—*i.e.*, knowledge bearing immediately and directly upon his own business. But education and knowledge are two distinct ideas, hence there is often a vast amount of educating, yet little knowledge. The former is a mode—the art of imparting instruction ; it must have an actor and an object. Knowledge is power—an intellectual substance—therefore it may exist alone ; but this power, to be useful, must be practical : it may be ornamental, but if not exercised it is useless. It follows, then, that speculative knowledge is useless in learning the trade

of gardening, for it is practical business ; the man must therefore exercise his hands. Further, knowledge, to be useful, must have a primary object ; hence the first object in imparting knowledge is to prepare the lad for the relation in life he is fitted or designed to occupy. But theoretical knowledge will never fit a man for being a gardener ; for, speculate as we please, the true definition of gardening is dress, and keep—two practical ideas ; hence, as there is no connection between the ideal and the practical, there can be no connection between gardening and science. Therefore a knowledge of science cannot be of primary importance to a young gardener. But knowledge ought to have a final object. The ultimate end, then, of all knowledge is to fit us for the higher and nobler employments hereafter. “*Sed hic laboris, hic difficilis* ;” this, of course, includes moral and religious knowledge—it is secular which concerns us at present. The question of education is interminable as the minds, the countries, and ages connected with it. To measure or bridge it, then, seems impossible ; perhaps some of its dangerous reefs might be buoyed. In the popular language of the day, the common systems of grinding and cramming appear to be doomed. The idea of grinding is, constant application to one branch of learning—such as Latin or Greek, without the remotest chance of either being useful in after-life. The idea of cramming is, quantity—the amount of knowledge imparted, the books devoured. Experience has proved both to be errors. It is to be feared that, in training for the gardener’s business, we are not free from those errors, when, as was said before, we distract the minds of young men with speculative knowledge before they have learned the first principles of the practical—further, in hunting after anything and everything but the right thing ; for it is the amount digested, not collected (to use a medical expression), that makes the chyle of a practical life. Again, the ideas, a finished education, a trade learned, are both of them errors—in fact, each is a contradiction ; for all that can be done in either is simply to put men in the way of acquiring knowledge. The citadel of ignorance lies intrenched in our own minds, therefore it must be stormed by self-exertion. Hence our motto ever ought to be, Progressive Development.

In the realisable paper of “W.” he seems to think that he has caught the type of the ideal and of the practical, and by some species of metamorphosis would like to change those forms into a new body. He may well say with Ovid, “*Di cæptis, Adspirate meis* ;” yes, and add with him, by way of parenthesis, For it is by you such things are effected. He will excuse me, then, when I say that I have no object but the elucidation of truth in a friendly spirit. In my opinion, then, both types are failures. The first is the wrong man in the

right place ; for, as he said, he had many advantages, and was in the best situations. The second type is the right man in the wrong place ; for truly in his case we see the pursuit of knowledge under difficulties : work, work, work night and day among pots and pans—a mill-horse life ; and yet it is said he was woefully deficient in scientific lore. How could he be otherwise ? Is it, or any learning, acquired by intuition ? To mention any learning in such circumstances is but a sham. As well try to teach the last-mentioned quadruped dialectics. To use the words of “W.,” how far a change of circumstances, situations, and training might have benefited both men, it is not for me to say. But while I believe, and have attempted to prove, that theoretical training is neither useful nor of primary importance to a young gardener, I hold as firmly, on the other hand, that ignorance is a depravation, and the want of systematic training an anomaly ; for no man, as the old adage says, was ever born with a trade in his mouth. Therefore instinct, intuition, have as little to do in this case as science could have to do in the other.

As, then, we utterly disclaim all power to make, and, I fear, to transform, we must take the raw material (as “W.” calls it) just as we find it. And if by ordinary means and common appliances we cannot turn out the superfine, perhaps we may get the home-spun—both are useful ; and, owing to market prices, there is as likely to be a glut of the former as the latter : be this as it may, we must be regulated by the laws of supply and demand. But to drop metaphor. If three years’ apprenticeship does not fit a young man to acquit himself among his fellow-workmen, there is a fault somewhere. Either the master is unfit to teach, or neglects his duty to his apprentice ; or the apprentice is unfit to receive, or neglects the instruction given. But if the master be fit, and does not neglect his duty, then the fault is not his ; therefore it must be the apprentice that is in fault. He ought to try something else. A man may fail in one branch of knowledge, and excel in another. Drummond would never have been a gardener, because the plainest directions appeared to go in at one ear and out at the other. But he mastered the science of botany, and left his name in living characters upon its pages.

A. W.

[We are highly pleased to find that this important subject, the education of young gardeners, is attracting the attention it deserves. When our correspondents have given us their views, we shall have much pleasure in giving our own ideas of the matter, founded as they are on rather extensive experience—having passed some three hundred young gardeners through our hands, some of them highly educated, others not able to spell many of the commonest English words.—Ed.]

DIFFICULTIES.

A WORD TO YOUNG GARDENERS.

EVERY one has difficulties to contend with, no matter what may be their calling or position in society. The monarch who sits on a throne and sways his sceptre over a mighty empire, and the humble peasant in his lowly thatched cottage, are alike in this respect, although their respective difficulties are of necessity extremely different in character. In the one case the interest and welfare of a nation present innumerable difficulties to the sovereign, while the most humble serf has his own particular difficulties to meet and obstacles to surmount in the other.

Difficulties are the chains that bind us—the shackles that hinder us in our race after knowledge; while without knowledge we are but poorly armed in order to cope with the many obstacles that every day rise in our path.

Knowledge is the powder we must use to blast into atoms the rocky difficulties we constantly meet with; Wisdom the fulcrum on which our lever must be placed if we would raise ourselves to *true* greatness. Perhaps some under-gardeners (I would not presume to write for the instruction of head-gardeners) may ask, What do you mean by *true* greatness? and may feel surprised when I say that *true* greatness neither consists in wealth nor position in society, but in the full development of all those powers, both physical, moral, and intellectual, which have been so wisely bestowed upon us by the omnipotent Creator of the universe.

No man is born wise—neither in a palace nor in a gypsy's tent; nor is it possible that a man can suddenly become blessed with wisdom. He may perchance become suddenly rich, but wisdom can only be obtained by laborious and persevering study. Linnæus (the father of botanists), Handel, and Vandyke did not render their names immortal because they were descended from noble families, nor because they were wealthy, but because they worked hard and studied hard, and became wise.

The following lines will give some idea of *true* wisdom:—

“ In parts superior what advantage lies?
 Tell (if you can), what is it to be wise?
 'Tis but to know how *little* can be known—
 To see all others' faults and feel our own.”

The difficulties that lie in the young gardener's path are as plentiful as “Roses in June;” would that I could add “and as pleasant”! but

experience tells me I should be wrong in doing so. They are also extremely variable (many are but imaginary)—some require but a slight effort in order to surmount them, while others rise up like great and mighty giants, and we have to strain every nerve before we can clear them from our paths. Sometimes an older veteran will reach out his hand and assist us in the fight. To those who do this our warmest thanks are due. No one who possesses an honest heart can forget such little acts of kindness from those who are placed in authority over us. Some, it must be owned, place difficulties in our way, perhaps because we have at some time or other given them some slight offence, or perhaps because they are ignorant of the exact way we are striking out for ourselves. Let us forgive such frankly—a brave manly heart never cries for revenge.

One of the greatest difficulties common to young gardeners is a want of inclination to study the various remarkable phenomena that are continually occurring in the vegetable kingdom around them. There are hundreds of gardeners that work on from day to day with a certain vague idea that ultimately they will be able to benefit their profession; this idea generally ends in nothing. Why? Because they are ignorant, not of the mere practical or physical part of their work, but of those primary laws that ought to regulate it.

If a gardener does not know something at least of vegetable physiology, structural botany, and chemistry, his path will be strewn with difficulties that it will be next to impossible for him to surmount. Such men can but rarely give you a satisfactory "reason why."

It may be taken as an axiom that where there exists an effect there has been a cause. Every young gardener should think of this, and when he sees any remarkable effect produced, should at once set himself to discover the cause. This, for beginners, will be extremely difficult at first, but rest assured you will learn something by your failures, as well as by your successes.

The want of books, time for study, &c., are all difficulties in a young gardener's way onwards, but the greatest difficulty is want of perseverance. "Where there's a will there's a way" should be printed in letters of gold, and fastened up in every bothy throughout the country.

In a future number of the 'Gardener' I propose to say a few more words on this subject with the kind permission of its worthy editor. Every one interested in horticulture will agree with me that the condition of young gardeners is well worth considering; not perhaps for what they are at the present time, but we must, to get some idea of their importance, consider the positions they, as a body, are eventually destined to occupy.

F. W. B.

NOTES ON HARDY HERBACEOUS PLANTS.

CAMPANULA.

THIS is a very numerous and natural group of plants. A strong family likeness pervades the whole, yet there is much diversity of habit and stature, which renders them useful for many purposes, and fit for a variety of positions. From the bright and beautiful character of the few species with which we are familiar in cultivation or in nature in this country, we may fairly estimate the ornamental value of a large number of the perennial species. Our own "Scottish Blue Bells," which, with grace and brightness, light up for a long period in summer the hedge-banks and waste places all over the country, may be taken as a fair type of the family in both the scientific and practical sense. A few species from Madeira, the Cape of Good Hope, and Australia, are suitable only for frame or greenhouse culture; but the great home of the family being northern and southern Europe and western Asia, a very large majority are hardy enough to endure the severest winters of our climate. They are all of easy culture. Many may be propagated by cuttings, but the largest number are best increased by division or by seed.

C. Garganica is about 6 or 9 inches high, somewhat tufted and prostrate, throwing out numerous branches, which, from May till July, are rather profusely covered with the light-blue flowers. The flowers are broadly campanulate, and deeply cut into five spreading lobes. This is a very desirable species, and is most suitable for planting on rockwork; but in light, rich, well-drained soil it is available also for the front lines of mixed borders. In some catalogues it is entered as a biennial; the plant is, however, perennial and hardy, but impatient of wet undrained soil.

C. elatine is nearly related to *C. Garganica*. It is prostrate and tufted in growth, and hairy in nearly every part. The flowers appear in June and July, are pale blue, broadly bell-shaped, and deeply cut into five narrow spreading lobes. A distinct and desirable sort, best fitted for planting on rockwork. Native of Piedmont.

C. elatinoides closely resembles the last-named sort, but is downy and hoary all over, even to the lobes of the corolla. It flowers in July and August; the flowers are blue, deeply cut into five lanceolate spreading lobes, and borne in rather close racemes. Suitable for rockwork, and planting on dry stony banks. Native of Lombardy.

C. fragilis, syn. *C. diffusa*, is a dwarf tufted species, sending out numerous prostrate branches. The flowers, borne in loose racemes, are bright blue, broadly campanulate, but not so deeply divided as those

of the foregoing species. It is a bright free-flowering plant, which about July and August forms beautiful masses of blue. Native of the mountains of Naples and Sicily, and hardy as the rock it clings to, if protected against stagnation of moisture. Erroneously included among the half-hardy species in some lists. A variety named *Hirsuta* is peculiar in aspect, but not so free flowering as this species.

C. isophylla, syn. *C. floribunda*, has much of the appearance of *C. fragilis*, but has broader leaves, is more dense and tufted in growth, and a more profuse bloomer. The flowers, which appear in June and July, are pale blue with a grey centre. Native of Liguria; perfectly hardy, but impatient of wet.

C. rotundifolia—"Scotch Blue Bells"—though not very "far fetched," so wonderfully increases in beauty under care and culture, that I cannot pass it over in this list, but strongly recommend it to all who may not have given it a trial. It is one of the most graceful, profuse, and lasting of *Campanulas*, and adapts itself readily to any position. A white and also a pink variety occasionally to be met with are interesting and pretty.

C. pusilla is a diminutive species in the way of *C. rotundifolia*. The flowers are pale blue, appearing in June and July in small loose nodding racemes. It is from the Swiss Alps, and chiefly valuable because of its great pertinacity of life in dry stony positions.

C. Cenisia is a very diminutive species, rising to the height of only 3 or 4 inches, forming a close carpet of lilac-blue flowers, large in proportion to the plant. One of the prettiest and most interesting in the family, found at a great elevation on the Alps of Italy. Most suitable for rockwork. Flowers in July and August.

C. pumila, in the form of the white variety, one of the best known of the smaller *Campanulas*. Like the last-named sort, it forms a close carpet of flowers, which appear in June and last till August. The blue form is not so common, but both should be in every collection of hardy herbaceous plants, as it is one of the most graceful and profuse-flowering, and a most accommodating plant, thriving alike well in nearly every variety of soil and position. Native of hilly pastures in Switzerland.

C. Zoyssii is a tufted species, with erect flower-stems from 6 to 9 inches high, bearing long campanulate dark-blue flowers about July and August. Found on mountains and rocks in the Tyrol, and is best suited for planting on rockwork, but succeeds well also in light rich soil in well-drained borders.

C. pulla. The blue forms of *C. pusilla* and *C. pumila* are sometimes sent out for this species. It is rather rare in the country, but is a very desirable and distinct plant. It is dwarf, rarely exceeding 8 inches high, with erect simple flower-stems, bearing each a solitary

bright blue flower, somewhat recurved on its stalk. The leaves are bluntly oval on short stalks. Flowers in June and July. Native of south-eastern Germany, on mountain-pastures. Suitable for rockwork, or for the open border in light, rich, well-drained soil.

C. Alpini, an erect species, about 1 foot high, each stem bearing a pyramidal panicle of showy blue flowers, which appear in June and July. Native of Italy and the east of Germany.

C. latifolia is a fine stately sort, of erect habit, with simple stems, which, in rich soil, reach the height of 5 feet, and are terminated by a long leafy raceme of purple flowers, appearing in July and August. This species is invaluable for planting in woods. It reaches its greatest magnitude and beauty in rich loam, but makes a fine display in poor, shallow, and even dry soil, if partially shaded by trees overhead. There is a dull white-flowered variety, which forms a good contrast to the purple one. Native of woods in the north of England and south of Scotland, and is widely spread over northern Europe and western Asia.

C. rapunculoides grows to the height of about $3\frac{1}{2}$ feet in cultivation, with simple erect stems, terminating in graceful leafy racemes of dark-blue flowers in June and July. One of the most showy of the family, the inflorescence being of great length—often $1\frac{1}{2}$ foot. It is very suitable for planting in woods and other semi-wild places. It is striking also in the mixed border, but rather troublesome, and encroaching by means of its creeping underground stems. Native of woods in Britain, Europe generally, and western Asia.

C. trachelium is a tall handsome species, with erect stems 3 or 4 feet high, and large violet flowers, arranged in terminal leafy racemes, which appear in July and August. In the early stages of growth it resembles the common Nettle, having large coarsely-toothed leaves of the same form. Its geographical distribution is nearly the same as that of *C. latifolia*, and it is found inhabiting similar places, and may be used for the same purposes. There are three varieties, showy and desirable—the double blue, double white, and single white.

C. persicifolia, one of the handsomest, and at the same time one of the most common, species. It reaches the height of 2 or 3 feet, the large broadly-campanulate blue flowers being arranged in a close raceme along the greater part of the stems. It begins flowering in June, and lasts on till September. There are five or six varieties, all very beautiful: *grandis*, *flore pleno*, *alba*, and *alba flore pleno*. The species, along with its varieties, should be more extensively cultivated than they are. There are very few more showy hardy herbaceous plants.

C. Garpatica is of dwarf growth, throwing up its bright blue, broadly-campanulate, erect flowers to the height of about 9 inches or

1 foot on simple stalks. There is a very fine companion to the blue form, in the white variety, named *C. Carpatica alba*, which in every respect is like the species, only the flowers are pure white. Flowers from June till August. A very handsome and showy species, which should be in every garden. It adapts itself to almost any position, and will do well in almost any soil if moderately rich. Native of the Carpathian Mountains.

C. turbinata.—A very beautiful species recently introduced by Messrs Backhouse. The flowers equal in size those of *C. Carpatica*, but are dark purple. The plant is more dwarf, but of the same tufted habit of growth. Native of Transylvania.

C. glomerata grows about 2 feet high, with many flexuose, almost straggling, stems, bearing terminal and auxiliary heads or dense clusters of flowers. The flowers are small individually, but collectively they form a large and effective inflorescence. The most common colour is deep purple or violet, and of this there is a double variety. But there is also a pure white sort, single and double, that is very ornamental and desirable. The flowers last from June till September. Native of the south-eastern counties of Scotland and the greater part of England, and extends over most of Europe and Russian Asia. Fond of rather a dry sunny position and rich soil.

C. speciosa, from Siberia, is nearly related to *C. glomerata*, and is mainly distinguished from it by its larger individual flowers and flower heads.

C. cervicaroides, from Italy, with long straggling stems, so closely resembles *C. glomerata* that it is scarcely worth having where the other can be got.

C. aggregata, from Bavaria, is the finest of the cluster-flowered Campanulas. It is about 2 feet high, with crowded clusters of pale-blue flowers, which last from June till September. Like *C. glomerata*, it delights in a warm sunny position and rich light loam.

C. Alpina, a handsome dwarf species from the Tyrol, resembling *C. rotundifolia*, but is more dwarf and compact, and with larger dark-blue flowers. Best suited for planting on rockwork. The flowers appear in July.

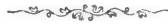
W. S.

THE MULBERRY.

I hardly think the reply of R. T. D. meets the requirement of "a Subscriber" in a former number of the 'Gardener.' Most trees planted in soil above their natural requirements throw down a deep or tap root; and when such is the case, the tree runs into excessive growth, and becomes unfruitful; and I believe there is no remedy for this other than that of undermining the tree and severing

the tap-root. This gives some trouble, but it is difficult to kill the Mulberry. The "lane I live in," until covered with houses, was celebrated for the Mulberry. There are two or three feet of light soil, then eight or ten feet of sand and stony gravel, affording perfect natural drainage. In this the Mulberry thrives and fruits. In the Rector's garden there exist the venerable remains of a Mulberry-tree, of unknown age. In my own garden there was a Mulberry of apparently equal date; it was called Queen Elizabeth's Mulberry—the garden having been a part of the domain of Catharine Parr, sixth wife of Henry the Eighth, and tradition fixed the planting of the tree on the "Virgin Queen." I have a very fine Mulberry, planted 35 years ago, which never fully bears, having been planted where the gravel has been dug out; it has run to excessive growth, and fails in bearing fruit.

DOWN SOUTH.



TROPÆOLUM SPECIOSUM.

I WAS glad to see that "W. S.," in the September number of the 'Gardener,' is also an admirer of this charming hardy herbaceous plant. Having grown it with success for the past ten years, and found it to bloom much easier than described in said number, if you think it worthy of a place, I give you my treatment; for although I live within twenty miles of the granite rock and the wind-raked terraces referred to, I am not of opinion that locality makes much difference, as it flourishes as a creeper in the greenhouse as well as it does out of doors in nine small flower-beds which it occupies—only that in the greenhouse it blooms early, and frequently makes a second bloom about this time, 20th October; but the bloom does not stand so long in heat as in the open air. First, then, when I wish to renew or make a new bed, I excavate the soil to the depth of about 18 inches, then lay about 4 or 6 inches, tramped down, of old pea-sticks upon this; then I lay 9 or 10 inches of good old hotbed dung or rotted manure, beating the whole firm to prevent the bed sinking. Slightly cover with soil, then lay the roots pretty thick over the bed, covering with 3 or 4 inches of soil. After the beds may have stood a few years, to exhaust the manure, a mulching might be given as nourishment; but such is not necessary to guard against frost, as the roots are perfectly hardy without it—only, as the roots start early into growth, planting should be done not later than January; and by such treatment I have always had them bloom fair the first season, and perfection afterwards. Previous to the young shoots coming above ground, I stick with decayed spruce branches 5 or 6 feet high, in a cone shape if circular beds, which they mostly are. This they soon cover, and after blooming, they are covered with little purple seeds, which also have a fine appearance; and as a creeper upon a house or wall, I know nothing to surpass it.

R. F.



NEW PLANTS OF THE PAST MONTH.

IN relation to the production of new plants, the first two months of the year may be regarded as a period of quiet and comparative rest—like a truce coming between two battles; it is at once a respite from the cares of a past campaign, and a time of preparation for another swiftly

approaching. Particularly is the month of January a season of repose in this respect, as the production of new plants at this season is invariably small.

Messrs Veitch & Sons have received a first-class certificate for a new *Asplenium* from Monte Video, supposed to be a new species, but allied to *A. erectum*. It has a pretty dwarf-tufted habit of growth, and appeared to find great favour among fern-fanciers. The same award was made to Mr Green, gardener to W. Wilson Saunders, Esq., Reigate, for *Agave Besseriana hystrix*, a dwarf-growing plant of a very compact habit, the leaves narrow, in length from 4 to 5 inches, and of a glaucous hue, and tipped by a stout black spine an inch long, and bordered by smaller spines, also of the same colour.

From Mr Baxter, gardener to C. Keiser, Esq., of Broxbourne, came a box of cut *Camellias*, to one of which a first-class certificate was awarded. It was named *Kelvingtonia*, and was said to have been obtained from Guernsey. This flower was of remarkable beauty, as well as of unusual size, having immense guard petals and a tufted centre, and measured fully 5 inches across, the colour being of a dark carmine crimson, freely blotched with white. This flower really created some surprise, and did not appear to be known to the best *Camellia*-growers.

A remarkable *Oncidium*, shown by Mr Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, was awarded a second-class certificate. It was nearly allied in character to *O. sphacelatum*, though it had been purchased as *O. nebulosum*. It had a flower-stem some 4 to 5 feet in length, the sepals and petals were pale-greenish yellow, spotted with brown; the lip of a pale-straw yellow, stained with brown at the base. Mr Denning also sent a very fine coloured variety of *Lycaste Skinneri*, the whole surface of the flower being deeply suffused with rose-colour, the petals mostly so, and the lip dotted with crimson. From Mr B. S. Williams came *Lycaste Schilleriana*, a distinct and rather pleasing species, with long recurved olive-green sepals, and smaller white petals and lip.

In the way of ornamental-foliaged plants, Mr B. S. Williams has exhibited a striking-looking *Aralia*, named *peltata*, with leathery-lobate leaves on long slender leaf-stalks, and apparently well suited for indoor decoration, and *Chamærops gracilis*, an elegant erect-habited variety of *C. humilis*.

From Messrs Veitch & Sons came some forms of the New Zealand Flax, which excited a little discussion among plant-growers. One was under the name of *Phormium Cookianum variegatum*, which was said to differ from *P. tenax* in its narrower leaves and more erect habit, but which, according to the 'Gardeners' Chronicle,' was certainly not

the *P. Colensoi* grown in some establishments, though, according to Dr Hooker, *P. Colensoi* and *P. Cookianum* are synonymous. There was also the green form of the foregoing, shown under the name of *P. Cookianum*, and beside these *P. tenax* and *P. tenax variegatum*. The Floral Committee, before whom these forms were exhibited, expressed a wish to see them again when more fully developed; and it was thought by some that the forms of *P. Cookianum* were simply undeveloped forms of *P. tenax*, and would be found to be nothing more when fully developed by growth.

At the meeting of the Floral Committee referred to, there were produced two splendid blooming plants of *Phalœnopsis Schilleriana*—the one exhibited by Mr Forsyth, gardener to Baron Rothschild of Gunnersby, the other by Messrs Carter & Co. of Holborn, London. The former, a very fine plant, bore two flower-panicles, one of which had seven branches; these had between sixty and seventy flowers and buds. The other was equally fine, and bore an eight-branched spike, one of the branches being again ramified. A special certificate was awarded to each.

R. D.



SOMETHING ABOUT THE CHRYSANTHEMUM.

TAKING up the record of varieties from page 33, I have to say, in reference to a great many of the Anemone-flowered kinds, that though they may not find acceptance with all lovers of the Chrysanthemum, they are yet well worth growing. Generally, they may be described as having from one to two outer rows of guard petals, with a quilled centre, formed as a tuft. There are Anemone-flowered kinds belonging both to the large-flowering and the Pompon sections; and on looking over my notes made in the past autumn, I find some of the best of the former to be as follows: Emperor, a large flower, the petals blush, with a sulphur centre, which becomes much darker with age; Empress, one of the finest, having large flowers and very broad guard petals of a pleasing lilac hue, and a light centre—this flower should be in every collection; Gluck, golden orange, very fine and showy; Jardin d'Hiver, dark rose, a fine and acceptable variety; Lady Margaret, a large and striking white flower, with a double row of guard petals; and Prince of Anemones, another large flower, with lilac blush guard petals, and a very full and high centre, rather paler. This by no means exhausts the list of Anemone-flowered kinds; it simply records some of the best flowers among them.

Of the Anemone-flowering kinds among the Pompon varieties, I can particularly recommend Antonius, yellow, with orange centre;

Astrea, lilac blush, with deep yellow centre, the flowers very pleasant and bright and freely produced ; Calliope, bright claret red, the centre large and full ; the white, golden, and lilac forms of Cedo Nulli, three most useful varieties ; Firefly, bright brownish scarlet, with close deep centre, a distinct and striking variety ; Madame Montels, white, with yellow centre, very pretty and striking ; Mr Astie, golden yellow, dwarf-growing, and of fine form ; and Reine des Anemones, a very fine white flower.

I confess to a great admiration of the new Japanese varieties for conservatory decoration, despite their somewhat uncouth and ragged appearance—setting at defiance as they do all the cherished laws of form, substance, and outline, so dear to the scientific florist. No one must think of cultivating them in the open air, unless in a most favourable and sheltered position, where they can be trained to walls or trellises, and sheltered from frost. They should be grown in pots in a conservatory, in which mode they can do good and acceptable service during the dark winter months. The flowers are as diverse in shape as they are varied in colour, consequently they admit of considerable variation. I can confidently commend the following kinds : Bronze Dragon, bronzy salmon ; Prince Satsuma, bright golden yellow, large and very double ; Red Dragon, reddish chestnut, tipped with yellow, flowers very double and of great size ; Red Indian, Indian red ; Tarantula, a most singular flower, with a close button-like disc, and a single spreading ray of long slender tubular golden florets ; Striatum, white-striped rose, very pretty when true, but unfortunately inconstant in character ; Tasselled Yellow, large golden yellow, very fine ; and Yellow Dragon, with large and showy yellow flowers.

Cultural directions have been abundantly given in the pages of the ‘Gardener.’ Successful growers and exhibitors, like Mr Thomas Hignett and others, can, and do, do full and substantial justice to this practical part of the question. It is my privilege to supplement their valuable remarks by giving the names of some of the best kinds I meet with at exhibitions, or at the establishments of the growers.

Quo.



TRAVELLING NOTES ON GARDENS IN THE MIDLAND COUNTIES.

My object in taking this journey was to enable me to cast aside home cares for a few days,—to see something of what was being done in other parts of her Majesty’s dominions, to visit old friends, and make new ones. We may stay at home and ponder over certain subjects till

the mind gets mystified and the eyes ache, without being a whit the better; whereas, intercourse with our fellows, or rather I should say interchange of thought, dispels many lurking errors, and enables us to strengthen what may have appeared to be somewhat uncertain opinions or conjectures.

Gardening visits, too, give an insight as to the different systems of management: they give us also an opportunity to criticise what we may consider to be amiss with others, and at the same time to reflect on our own defects.

Horticultural exhibitions are powerful instructors, as they bring the products dispersed over a large extent of country within a narrow compass, which, no doubt, stirs up the ambitious faculties of some, and agitates the incipient desires of others.

But another plea may be offered in favour of gardening visits—viz., that, although we may have had exhibited no inconsiderable amount of talent, we must not run off with the idea that everything else has received the same careful attention, which may or may not be the case. There is room for suspicion, for how frequently do some of the leaders at our metropolitan and local shows carry off for years the principal prizes, and get what is called, in loose phraseology, “their name up,” while other things of equal importance have an independent existence that are allowed to take care of themselves. The motto of every good gardener is, “Uniform attention throughout;” so it is advisable, sometimes, to see what those are doing at home who bear a great name. Gardeners, as a body, are kindly disposed to each other; no class of men fraternise more freely, and how often have I known casual meetings ripen into deep and lasting friendships! Never but once during my wanderings have I been treated with cold formality—a frigidity not easily to be forgotten.

Now I must proceed on my journey; and by the express found myself on a September morning in Birmingham at 10.50, and by the next train was whirling off to Warwick. The country is flat,—not an object to engage the attention till I reached Kenilworth station. Here I felt that I had entered on classic ground—consecrated to the end of time by the magic pen of Sir Walter Scott, to whose genius civilisation bends the knee of homage. Here the remembrance of many tragic events rushed upon my memory. There too, was the memorable year of 1575, when the Earl of Leicester feted with regal splendour the Elizabethan Queen. All the luxury money could purchase was pressed into her service. Every actor in the grand drama stood before me as described by the novelist. There were the minstrels, the dancers, the professors of buffoonery, all possessing but one idea, to gratify and support the vanity of an imperious queen. But amid

this galaxy all was not joy,—there existed the deeply-seated villanies of Varney and the broken heart of Amy Robsart.

Nothing now remains of Kenilworth Castle, upon which we can read the memorials of past greatness, but the mouldering walls, ruined battlements, and deserted halls. The hand of destruction has clinched it firmly, that leveller of every material form.

In the course of a few minutes more I found myself at Leamington station, and shortly observed the grey towers of Warwick Castle shooting out from among gigantic trees. Situated as it is on high ground, it takes in a large sweep of the surrounding country. Having secured comfortable lodgings at the hostelry of Mrs Ann Page—who I do not suppose is any relation to the lady of that name who shines so conspicuously in ‘The Merry Wives of Windsor,’ but that is a point I do not wish to investigate—I now steered my course in the direction of the garden and inquired for Mr Spink, to whom I was an entire stranger—but that does not matter. My reception was kind, and he at once placed himself at my disposal; and certainly I could not have had the services of a more accomplished cicerone. Well he may be, as he has held his present situation under the late and present Earl of Warwick more than fifty years.

The kitchen-garden appears to be about 3 acres, and dates beyond the memory of any living man; no wonder, then, that the soil looks weary and worn out—sickly it must be under such a long period of cultivation. There is a time when manure ceases to stimulate—more is required than dung; there are the mineral ingredients, which consumed, vegetation languishes, and eventually refuses to yield anything like an adequate return. No doubt, when cropping has been conducted upon correct principles, the natural elements of the soil may be preserved longer, but there is a time when they will disappear under the best management. Mr Spink has to fight against numerous enemies; one in particular is, that on one side of the garden are planted close to the wall large timber-trees whose roots have extended like a piece of network throughout the vegetable quarters. Beyond a few of our usually cultivated varieties of Apples and Pears there is no extension. On the Peach-wall there are a few healthy trees, and others again are in the last stage of dissolution; and were it not, says Mr Spink, “by planting a few yearly, I should soon come to utter grief.” This I can quite believe, as all stone-fruits dislike the red sandstone; they must have lime either naturally or applied.

I have little or nothing to record about the forcing-houses, as they are few in number and in a tumble-down condition. It is hardly possible to suppose such a state of dilapidation being called upon to do duty. Fruit certainly is forced, but in what way I cannot guess—

no matter in what direction they come, the rain and wind have complete toleration to enter at every corner.

My next move was to the pleasure-ground: somewhat extensive, and containing at the extremity a large sheet of water, partly an artificial increase by an extension of the river Avon. This is rather a sluggish river, flowing immediately under the castle walls; and what may surprise others, as it certainly did me, was to find in such a place a flour-mill keeping up an incessant clack-clacking: true, there may be music in a noise of that kind, but to the majority, I fear, it is rather harsh. This department was not highly kept; profit appears to be a greater object than pleasure, so that there is only a small portion set apart as dress ground. The majority of the trees are such as are usually to be found in park scenery. There is a considerable number of the Lebanon Cedar, when in full vigour a beautiful object; but nearly all have reached their climacteric, and show signs of decay. Here and there are dotted a few specimens of Conifera, but not of sufficient interest to claim any share of our attention. On an elevated position overlooking the lake, at a considerable distance, stands the conservatory; and if the name designates a plant-house, there could not possibly be a more flagrant misapplication. The roof is slated and plastered inside, supported in front by columns, between which are glazed sashes, admitting just enough light to torture vegetation. The only plant of value was a healthy and handsome *Dicksonia antarctica*—apparently just the situation it requires.

In the centre, on a square marble pedestal, stands the celebrated “Warwick Vase,” designed of white marble, and executed in the purest Grecian taste, believed to be one of the finest specimens of ancient sculpture at present known. Nothing is certain as to its early history beyond that it was found at the bottom of a lake at Adrian’s Villa near Tivoli. The shape is circular, and it holds 136 gallons. Two large handles are attached, formed of interwoven vine-branches, from which the tendrils, leaves, and clustering grapes spread round the upper margin. It rests upon vine-leaves that climb up its sides. In addition to these, there are the heads of satyrs bound with wreaths of ivy, the vine-clad spear of Bacchus, and the crooked staff of the Roman augurs. These were court officials who professed to foretell coming events by sacrifices and divinations of various kinds.

At present there is no flower-garden, only a few miscellaneous beds scattered about the pleasure-ground of various shapes and sizes. But apparently something is to be done, as I observed in front of the conservatory the marking of a new terrace-garden.

Warwick Castle is said to have been founded in the year 915, by Ethelfreda, daughter of Alfred the Great, but how much, or if any, of

the original remains, is a question not easily decided. About such places there is always to be found a class of persons saturated with legendary lore, who are exceedingly desirous to impregnate the minds of strangers with the marvellous. I remember some years ago having asked one of these archæological professors as to the age of a certain building. To my utter amazement he replied, "Why, as old as the time of Sennacherib." "Come," said I to myself, "this is rather too dense;" and with one breath inquired who was Sennacherib. "Oh!" said my informant, "one of the kings of England." The castle is surrounded by a moat, now dry, and spanned by an arch where the ancient drawbridge stood. Portcullises are mostly numbered with things of the past; two were once used here as a necessity, and one is still preserved as an object of antiquity.

Immediately on entering the gateway that leads to the inner court, a massive irregular castellated building strikes the stranger with awe, and subjects the mind to feelings of intense veneration. Look to the right, and there you see Cæsar's Tower, said to be coeval with the Norman Conquest: it has battled against the tempest for eight hundred years, and still continues unscathed. Turn to the left and you observe two unfinished towers begun by Richard III. There is also Guy's Tower, 128 feet high, 30 feet in diameter at the base, and the walls 10 feet thick. After all, the interior of the castle is the real centre of attraction, rich in rare antiquities. The paintings, too, are of a first-class character, and to show that such is true I have only to name some of the artists. There are works by Rembrandt, Vandyck, Rubens, Guido, Murillo, and many more of equal merit. Only let me notice the portrait of one among this large collection, that of Ignatius Loyola, the founder of the order of the Jesuits, whose life I have made a subject of study; and never did history and phrenology agree so closely in describing the real character of a man. But I must make a break here, or the editor will tell us that such matter is more fitted for the pages of the 'Art Journal' than the 'Gardener.'

In the porter's lodge are exhibited the relics of Guy Earl of Warwick, who, we are told, was nine feet high! If true, his height must have nearly equalled Goliath of Gath, who measured 6 cubits and a span.

The town of Warwick is said to be older than the castle, having been founded, it is believed, about the beginning of the sixth century. If so, it must have been often rebuilt, as no part has an aged appearance. The only public buildings of note are the churches, rich in architectural beauty; but all are surpassed by St Mary's, a magnificent structure founded previous to the Norman Conquest.

The shades of evening had now closed upon me, so I parted with

Mr Spink with feelings of sincere gratitude. He had given up his time to me; he had treated me with the greatest kindness where everything and everybody were strangers.

The following morning landed me in the show ground of the Warwickshire Agricultural and Horticultural Society. In no section of the latter department was there anything introduced deserving to be recorded. The character and quality of the material differ in no particular from what is to be seen at our autumn meetings throughout the country. Visit twenty of them, and they will be pretty much the same. This is an age of change, and certainly a change of plants has here become a necessity. The finances of the society suffer by a continued sameness. Often and often have I heard visitors express their disapprobation by saying, "There is nothing new to be seen; it is the same thing over and over again." These are pungent expressions; they convey more than actually appears: it is time, then, for managers to calculate the consequences, as it is they alone who can make the necessary reforms by remodelling their schedule. Only offer remunerative prizes, and gardeners will soon be equal to the demand.

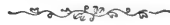
This is not a question that can be fully discussed in an article of this kind: it deserves more thought than a few running comments. The defect is only to be acknowledged, and how to settle it will soon transpire.

As the air of Warwickshire is all the refreshment the managers consider necessary to support their judges, I had now nothing further to detain me, beyond a little professional gossip, so I retraced my steps to Birmingham, and by the next midland train reached Worcester on a visit to Mr Smith's nursery, and fortunately found him at home, and he offered me every facility to look through his extensive grounds.

ALEXANDER CRAMB.

THE GARDENS, TORTWORTH.

(To be continued.)



MANCHESTER EXHIBITION.

THIS grand event, for it is nothing less, begins on the 14th of May, and ends on the 21st. It will, as hitherto, be held in the Botanical and Horticultural Society's Gardens at Old Trafford.

For plants and flowers of various descriptions, there is offered in prizes the startling sum of £906, and for fruit £21.

We observe that Mr Williams of Paradise Nursery, Holloway, London, offers a prize of £50 for fifty plants; one half of them to be in bloom, the other half to be foliage-plants. This will be the Derby of the horticultural year. The Society offers £25 as the second prize in this class.

Sam. Mendal, Esq. of Manchester, offers a prize of £20 for ten Cape Heaths in flower; the Society, £10 as a second.

William Cunliffe Brooks, Esq., offers £20 for twelve Roses in bloom; the Society, £10.

C. F. Beyer, Esq., offers £10 for eight Cycads; the Society, £5.

Five other gentlemen offer special prizes of a handsome description for bedding and hardy plants, four bunches of Grapes, the best six Apples, twelve hardy Shrubs, and for Cucumbers.

Then follows a long list of prizes by the Society for every conceivable description of plants.

Verily, the horticultural spirit of Manchester is at the boiling-point, and long may it continue so; and, like the Gulf-stream, may it flow north, and warm the waters as it progresses.

From what we have seen of Mr Finlay's previous management of these great shows, we predict that this will be one of the most magnificent of the season, for he and his council have secured the confidence of exhibitors in all parts of the country.



ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Schedule of Prizes for the Great International Fruit and Flower Show of this Society, to be held in Edinburgh on the 8th and 9th of September of this year, is now before us. The leading prizes are £10, £7, £5, and £3, for the best collection of eight sorts of Grapes. Half these sums for four sorts. For twenty sorts of fruit, £15, £10, £7, and £5. For sixteen sorts, £10, £7, £3, and £1, 10s. Besides these, prizes are offered for nearly all other sorts of fruit, including Grapes of all descriptions.

For eight stove and greenhouse plants, 10, 7, and 5 guineas are offered. For the three finest Orchids in bloom, £5, £3, and £1. Prizes of a similar character are offered for all the usual autumn flowers, whether these be cut spikes or pot plants.

Judging from the display produced by a similar schedule in 1865, we expect this to be the finest display of fruit ever brought together in one place. The sum total of the prizes offered is but little short of £500, more than half of which is offered for fruit. We are very pleased to learn that many of the great English fruit-growers mean to compete on the occasion.



R E V I E W.

THE GARDEN ORACLE, AND HORTICULTURAL YEAR-BOOK FOR 1869. Edited by SHIRLEY HIBBERD, F.R.H.S. Groombridge & Sons, Paternoster Row, London.

Is replete with well-assorted information, bearing on a great variety of horticultural and floricultural subjects; in addition to which it contains an almanac and lists of all the new plants of the year. It is useful alike to the amateur and gardener.

Notices to Correspondents.

[We have again to apologise for the postponement of many valuable communications.—ED.]

ABERDEEN.—Sow your *Calceolaria* seed about the middle of August in pans, on soil of equal parts well decomposed leaf-mould, river-sand, and light loam—cover very lightly, if at all, water with a fine rose, and place the pan in a close frame shaded from the sun. The seed, if good, will soon vegetate; when it does, give more air, remove the shade, and keep the plants close to the glass. See that they do not suffer for want of water. When they have three leaves developed prick them out in pans or boxes in soil similar to that the seed was sown in, with the addition of a little well-decomposed manure; shade and keep them close till they begin to grow, then give plenty of air. When they have made some progress in this position re-plant them, but wider apart—say in boxes 2 inches apart each way. By the time they are well established in the soil, so as to lift with balls, take them up carefully and pot each plant separately in 4-inch pots in soil where decayed manure is substituted for the river-sand. When they have filled their pots with roots, and before they get pot-bound, shift them into 8-inch pots, in which they will bloom in June. They must be kept free from their great enemy green-fly by occasional fumigations with tobacco; and they must never be allowed to flag for want of water. When the flower-stems have grown to some height they should be staked carefully. When in bloom they should be shaded from the noonday sun. This will prolong their season of bloom.

We shall be very much obliged to Mr Simpson if he will send us a few papers bearing on matters Horticultural in New Zealand.

P. B. F.—We would plant the centres of your circles with *Sensation Chrysanthemum*, then a ring of two rows of *Crimson King Verbena*, and next the grass a band of *Cerastium tomentosum*, or *Alyssum maritimum variegatum*. The oblong beds we would plant the centres with *Bijou Geranium*, then a band of *Purple King Verbena*, and finish with a white band next the grass, as in the case of the circles. We think this would be your best arrangement of such plants as you name. We certainly would not make the circles less, as you propose.

VIOLET.—October is the proper time to put in *Calceolaria* cuttings, and of the recently made wood. They may be kept as you describe, and should be transplanted and hardened off before final planting in the open ground. We know of nothing to take the place of *Viola cornuta* in your case. Sow at once and encourage the growth, and it will suit you.

We never raised *Cerastium tomentosum* from seed, but believe it will be in plenty of time if sown now as you propose.

A CONSTANT READER.—We never before saw anything like the branch of black Currant tree you sent us, nor can we suggest what may be the cause of it. As it destroys their fruitfulness, we advise you to lift them and plant them elsewhere. We would be disposed to give the soil a dressing of quicklime.

E. WELSH.—The Celery you sent us last spring was of first-rate excellence; we shall be much obliged for a pinch of seed this spring.



THE GARDENER.

APRIL 1869.



THE ROSE.

(Continued from page 106.)

CHAPTER IX.—SELECTION.



DESCENDING now from roseate heights, and ere we reach the perfumed plains below, we must halt to gaze upon our

PILLAR ROSES,

some rising singly here and there, like the proud standards of victorious troops; some meeting in graceful conjunction, saluting each other like our forefathers and foremothers in the stately minuet—bowing themselves, like tall and supple cavaliers, into arches of courtesy, with keystones of cocked hats. In both phases these Pillar Roses are beautiful additions to the rosarium, enabling us to enliven, with a pleasing diversity, that level which is described as dead. But with reference to the first, I must offer to amateurs a respectful caution—that to grow single specimens in isolated positions, where they will invite, and ought to satisfy, special criticism—knowledge of habit, and experience in pruning, will be indispensable. Melancholy results must inevitably ensue from ignorance or inattention; and I have shuddered to see examples of both in long lanky trees, without any lateral shoots, flowerless and leafless for three-fourths of their height, reminding one of those shorn disgusting poodles, profanely termed by their proprietors “lions,” as they stand upon their execrable hind-legs to beg. But not upon them—not upon the helpless object—but on the barbarous owner, we must expend our noble rage; upon those

who have brought innocent loveliness to the whipping-post, or rather the pillory, and compelled her to look the words which St Simeon Stylites moaned—

“Patient on this tall pillar, I have borne
Rain, wind, frost, heat, hail, damp, and sleet, and snow.”

The best plan of growing these Roses, which a long experience has taught me, is this: To prepare and enrich your soil as I have advised in chapters vi. and vii., and then to fix firmly therein the pillar which is to support the trees. Of what material is this pillar to be?—wood or iron? The former commends itself to the eye (and the pocket) at once; and I well remember the satisfaction with which I surveyed an early experiment with larch poles, well charred and tarred, driven deep into the ground, and looking from the very first so very rustic and natural. The Rose-trees grew luxuriantly, and for three or four summers I esteemed myself invincible in the game of pyramids. Then one night there came heavy rain, attended by a hurricane, and when I went out next morning, two of my best trees were lying flat upon the ground, with their roots exposed (the poles, having decayed near the surface, had snapped suddenly); and several others were leaning like the tower at Pisa, some hopelessly displaced, and others deformed and broken. Fallen, and about to fall, they looked as though their liquid manure had been mixed too strong for them, and had made them superlatively drunk. Shortly afterwards I had another disaster, caused by a similar decay—the top of a pole, in which two iron arches met each other, giving way to a boisterous wind, and so causing a divorcement between Brennus and Adelaide d’Orleans, long and lovingly united. I would therefore advise, not dwelling upon other disadvantages resulting from the use of wood—such as the production of fungi, and the open house which it provides for insects—that the supports for Pillar Roses be of iron. Neatly made and painted, tastefully and sparingly posed, they are never unsightly; and, enduring as long as the trees themselves, will in the end repay that first outlay which makes them, for some time, an expensive luxury.

The height and thickness of these single rods will be determined by the position to be occupied, from 5 to 8 feet above the ground being the most common altitudes, and the circumference varying from $1\frac{1}{2}$ to 3 inches. Below the surface, their tripod prongs must be deeply and securely fixed from 1 foot to 18 inches in the soil, so as to bear any weight of flowers and foliage, and defy all the royal artillery of Æolus. For arches, the rods may be 7 or 8 feet from the ground, and 8 or 9 feet apart.

The ground and supports being prepared, a selection may be made from the list subjoined of varieties, vigorous and beautiful (as the recruiting sergeant picks out for the Guards the more robust examples of humanity); and these, whether on their own roots, or worked upon brier or manetti stocks, according to their habit and the character of the soil, should be planted in November, and safely tied to their rods. Tarred twine is the best material for the latter purpose, being cheap, durable, and to be had in different thicknesses, according to the strength required. Prune closely in the following March, removing three-fourths of your wood, so as to insure a grand growth in the summer, which, moderately shortened in the succeeding spring, should furnish your pillar, from soil to summit, with flowering lateral shoots. By the time your tree has attained the dimensions required, your observation will have taught you how, for the future, so to prune it that you may be sure of an annual bloom, cutting away all weakly wood, and regulating the general growth with an eye both to form and florescence. As with a Vine, only put a strong cane into a rich border, use the knife courageously, and be sure of Grapes.

As single specimens of Pillar Roses, the following may be tried with confidence :—

Anna Alexieff,* free in growth, in foliage, and flowers—the latter of a fresh pure rose-colour, which makes the tree very distinct and charming.

Auguste Mie, an old favourite, having well-shaped globular flowers, of a delicate pearly-pink complexion, and blooming freely both in summer and autumn.

Baronne Prevost, another noble, vigorous old lady, still holding her own in general society, if not at levees and balls (*i.e.*, at the Rose shows). The flowers are very large, fragrant, and of a true rose-colour. Colonel Rougemont, closely resembling the Baroness, and in some points superior, is of a more weakly condition, and therefore less adapted for a Pillar Rose.

Caroline de Sansales, with outer petals of a pale flesh colour, deepening towards the centre, is a very lovely Rose, and still among the best of our light-coloured varieties.

Comte de Nanteuil, from its abundance, depth, and arrangement of petal, is quite one of our best show Roses, although its complexion—bright rose on the tree—“*rose vif*,” as the French term it—does not pass through the ordeal of exhibition so triumphantly as its grand and graceful form.

Duchesse de Cambacérès, of robust habit (if Her Grace will pardon the expression), profuse and continuous in bloom; makes an admirable Pillar Rose. So do the two other *Graces*, namely :—

Duchess of Norfolk,† with her bright, deep crimson flowers, her large and glossy leaves, and

* All the Roses in this list, except Gloire de Bourdeaux, Gloire de Dijon, and Jaune Desprez, are of the Hybrid Perpetual family.

† This Rose grows wonderfully on the manetti, and I received some years ago from Messrs Wood, of Maresfield, two specimens, which had made, in their first summer, shoots 18 feet long from the “bud.”

Duchess of Sutherland, introduced by Monsieur Laffay in 1839, but still fresh, fair, and fragrant; and though surpassed as a model flower, a beautiful addition to the Rose-garden.

Eugène Appert is very effective for the purpose under consideration, being conspicuous for the intensity of its glowing crimson hues, and its dark-green lustrous leaves.

General Jacqueminot, for so many summers the Rose of our gardens, is still a glory and grace, its petals, soft and smooth as velvet, glowing with vivid crimson, and its growth being free and healthful. I well remember the time when we welcomed this conquering hero, in his brilliant uniform, as being invincible; but development in Roses is no theory, as in certain schools of theology, but a sure reality, and the General must now pale his ineffectual fire in the presence of such Roses as Charles Lefebvre. As a Pillar Rose, notwithstanding, he is not surpassed.

Gloire de Bourdeaux is a Tea-Noisette, or rather it is classified among the Teas, and is a Noisette. It has been known latterly in the catalogues as Belle de Bourdeaux—Bacchus, as I suppose, having expostulated with Flora, and convinced her that the real glory of Bourdeaux is its wine—its Lafitte, Latour, and La Rose, of another description. Its numerous flowers are interesting—individually, from the striking contrast between the colours on either side of the petals, these being of a rosy lilac without, and within of a pale silvery flesh colour; and *en masse*, effective and showy. It “grows like a willow,” to use a gardener’s phrase, much resembling in habit

Gloire de Dijon, described among the Climbers, but excellent in every phase. Like Phyllis, it “never fails to please;” unlike Phyllis, it is never “coy.”

Jaune Desprez, Noisette.—Phœbus, what a name! Little thought poor Monsieur Desprez, when he sent out his seedling in the pride of his heart, that it would associate his name throughout the Rose-loving world with jaundice and bilious fever. Yellow Desprez, moreover, is not yellow, but buff or fawn colour, deliciously fragrant, of beautiful foliage, blooms freely in autumn, and makes, with careful culture, a pretty Pillar Rose.

Jean Goujon, a handsome, healthful giant, with grand, well-shaped flowers of a deep rose-colour, well deserves a place in the front rank of Queen Rosa’s Grenadier Guards.

Jules Margottin bears the honoured name of one who has enriched our Rose-gardens with many a precious treasure—Mons. Margottin of Bourg-la-Reine, near Paris; and no column could declare his praises so suitably, or perpetuate his fame so surely, as a pillar of this lovely Rose. I would rather that a pyramid of its sweet bright flowers bloomed above my grave, than have the fairest monument which art could raise. But “there’s time enough for that,” as the young lady observed to her poetical lover, when he promised her a first-class epitaph.

La Reine, once Queen of the Hybrid Perpetuals, is still a most royal Rose; and, with the attention which royalty has a right to expect, will give magnificent blooms in a genial—that is, in a hot sunny—season. In wet or cold summers the immense buds do not open kindly. It is not, in fact, to be relied upon, like

La Ville de St Denis, which, faithful as she is fair, and bounteous as she is beautiful, always gladdens us with flowers of exquisite symmetry, and of a deep fresh rosy pink.

Leopold Premier well deserves his title—I do not mean as Roi des Belges, but as a Rose *de la première qualité* among the deep-red varieties. There is a lovely

tinge of violet in its large symmetrical flowers, which makes it specially charming.

Lord Rûglan is somewhat uncertain, but in his happiest mood superb, superlative. A sunbeam in a goblet of Burgundy may give you some idea of his mingled hues—crimson, purple, and glowing red; but all words of mine are powerless. So let him go, and we will drink the Burgundy in honour of those most winsome dames—

Madame Boll, whose foliage alone, with the dew on it, is worth a getting up at sunrise to see, but having flowers to correspond of an immense size, exquisite form, and of a clear bright rose-colour.

Madame Boutin, one of our most certain and charming Roses, of a light cherry crimson, or cerise hue, and of perfect shape; well described in a French catalogue as “*bien faite, beau rouge, cerise vif.*”

Madame Clemence Joigneaux.—Were I asked to point out a Rose-tree which I considered a specimen of healthful habit and good constitution, I know of none which I should prefer before M. C. J., with its long, strong, sapful shoots, its broad, clear, shining leaves, and its grand, cupped, carmine flowers.

Maréchal Vaillant well merits his baton for distinguished conduct in the garden; and, in his bright crimson uniform, is never absent from his post, nor ever fails to distinguish himself when the wars of the Roses are fought in the tented field.

Oriflamme de St Louis, somewhat loose and tattered in its folds (petals), as ancient standards are, but of a brilliant, dazzling (*éblouissant*) scarlet, suffused with a peculiar blue violet tint. In complexion, at all events, a son worthy of his sire, being “*issue de la Rose, General Jacqueminot.*”

Souvenir de la Reine d'Angleterre, one of the largest Roses in cultivation, and, though seldom supplying the symmetrical blooms which are required for the keen eye of a censor, a beautiful and effective Pillar Rose. The colour of its flower is a soft rosy pink.

Triomphe de l'Exposition is another Rose to be admired in our gardens as a tree rather than scrutinised at our shows as a flower. It bears an abundance of bright crimson and charming Roses, of good shape, but of medium size.

There are, doubtless, several other Hybrid Perpetual Roses which may be grown as successful specimens of the Pillar Rose, but I have only enumerated those which I have proved. Charles Lefebvre, François Lacharme, and Madame Rivers, for example, have been commended by some rosarians for the purpose, but they have not succeeded with me in that special department, though, of course, I grow them abundantly, and shall presently speak their praise. Again, I have not included among the single specimens certain varieties, as beautiful perhaps as any which are there, but more appropriate to form centre-pieces of beds, to be placed at the back of beds, or on either side of walks with other Roses; because, only blooming once, they are wont to look conspicuously dreary, in solitude and separation, when their summer flowers have fallen. No Rose-trees can be more admirably adapted for the pyramidal form, owing to their luxuriant growth and bloom, than—

Blairii 2, a perplexing title (transposed to "Bleary Eye" by a cottager of my acquaintance), until we receive the explanation that the Rose was one of two seedlings raised by Mr Blair of Stamford Hill, near London. No. 1 is worthless, but No. 2, with its large globular flowers, the petals deepening from a most delicate flesh colour without to a deep rosy blush within, is a gem of purest ray serene. A bloom of it, cut from the tree before it was fully expanded, in the intermediate state between a bud and a Rose, and tastefully placed with a frond of *Adiantum* (*Cuneatum*, *Sanctæ Catharinæ*, or *Tenerum*) in her back hair, would make even a Fury good-looking. It belongs to the hybrid China family, as does

Brennus, far more happy as a Climbing Rose than when, scaling with his Gauls the Tarpeian rock, he woke up the geese who woke up the Romans to repel him headlong, and to save their capital. It is a most free-growing, free-blooming variety, with large deep carmine flowers.

Charles Lawson, a hybrid from the Isle de Bourbon Rose, makes a noble specimen, producing magnificent blooms of a bright glowing pink abundantly in all seasons. This glorious Rose well deserves all those adjectives expressive of beauty which, I begin to fear, my readers will regard as wearisome and vain repetitions. I can only plead that the epithets are true, and cry "Excuse tautology!" as I once heard a parrot scream for the best part of a summer's day.

Chénédollé, hybrid China, is a very attractive garden Rose. Not "an article which will bear the closest inspection" of anatomical eyes, but adding greatly to the general effect of the Rosarium with its vivid crimson flowers.

Coupe d'Hébé, hybrid Bourbon, is perhaps a size smaller than we should have expected Hebe's cup to be, considering the requirements of such inflammatory personages as Jupiter, Mars, and Bacchus. Probably, when the gods set up a butler, as they did on the dismissal of Hebe, in the person of Ganymede, they may have enlarged their goblets; but it was a fashion of the ancients, including our own grandfathers, to take their wine from egg-cups and extinguishers of glass. Be this as it may, *Coupe d'Hébé* is undoubtedly one of our most graceful and refined Roses, exquisite in form and in colour, the latter a silvery blush. Referring to a list of the Roses which I grew in 1851, I find that, of 434 varieties, 410 have been disannulled to make way for their betters! Of the two dozen which are in office still, three-fourths are climbing or decorative Roses, and six only of sufficient merit to pass the ordeal of exhibition—namely, *Blairii* 2, *Cloth-of-Gold*, *Devoniensis*, *La Reine*, *Souvenir de Malmaison*, and *Coupe d'Hébé*.

There was another

General Jacqueminot, a hybrid China Rose, in high favour at that time; and though he cannot compete with his modern namesake, his regimentals being neither so well made nor so brilliant, he is still a very handsome hero, and forms, with his vigorous branches and fine large purple-crimson flowers, a fine Pillar Rose. So does

Juno, H. C., a Rose which, like the goddess, may justly complain of neglect, appearing in few gardens, and well deserving a place in all. I must allow that *Juno* is sometimes "inconstant;" nor does the sorrowful fact surprise us, foreknowing the provocation of her husband Jupiter; but she is, generally, all that a good Rose ought to be, and then most divinely fair. We have so few Roses of her pale delicate complexion, that, until we are favoured with more Perpetuals of the Caroline de Sansales style, *Juno* is a most valuable Rose, large and full, and, in her best phase, an effective flower for exhibition.

Paul Perras, H. B., is another valuable Rose in this section, of robust growth, and producing plentifully its well-shaped blooms, of a light rose-colour.

Paul Ricaut, H. B., was once the swell of the period, the D'Orsay in our beau monde of Roses; and though no longer a leader of fashion, he is still a very attractive member of society. Upon the tree its large, closely-petalled, rich crimson flowers are most beautiful; but it is not reliable as a show Rose, expanding rapidly, and too often displaying a large "eye," on his arrival at the Exhibition, as though astonished by the splendour of the scene.

Arches and arcades are graceful, because natural, forms, *quas Natura suâ sponte suggerit*, as we read in our Oxford Logic, in which to grow varieties of the Rose having long, lissom, drooping branches. All the Climbing Roses selected in the preceding chapter, except the Banksian, which must have a wall, are admirable for the purpose—the Ayrshire and Sempervirens being the first to fulfil their mission, covering the framework in two or three summers with their white clustering Roses and deep-green glossy leaves. Of the Noisettes, Gloire de Dijon, Maréchal Niel, and Solfaterre, are sure successes; Cloth-of-Gold and Lamarque doubtful. M. Niel is specially adapted for this form of Rose-growing, from the pendulous habit of its glorious golden blooms. Walking beneath, you are privileged to see them with all their charms displayed; and never yet was arch of triumph reared to compare with this in beauty. All the summer Roses which I have selected for pillars, omitting Paul Ricaut, are equally to be commended for arches also, and soon meet each other upon them when generously and judiciously treated. To the latter I would add Triomphe de Bayeux, Hybrid China, a variety of remarkable vigour, with delicate flowers, resembling those of a Tea-scented Rose, and invaluable in the bud for bouquets and button-holes.

Where windows and walls are otherwise inaccessible, a long spider-broom, in the hands of an experienced housemaid, is a most efficacious weapon, and some of us can remember how, in our younger days, we watched its aggressive evolutions with gladness and approbation; but who would think of cutting it in twain, and of staking the upper half in his Rose-garden? Yet have I seen objects suggestive of such an operation in those very

TALL STANDARDS

which are still to be found in some collections, but which, were I Czar and Autocrat of all the Roses, would soon find themselves, like other foolish Poles, in exile. Their appearance is unhappy; there is no congruity between stock and scion, no union between horse and rider—an exposition, on the contrary, of mutual discomfort, as though the monkey were to mount the giraffe. The proprietors, it would seem, have been misled by an impression that the vigour of the Briar would

be imparted to the Rose, whereas the superabundance of sap has been fatal. Food, continuous and compulsory, which it could not assimilate or digest, has induced a sickly surfeit; and the wretched Rose is stupefied, and looks so, with a determination of blood to the head. Are we then to discard entirely those standard trees described to us in the catalogues as "extra tall"? Is Briareus the giant to be again buried beneath Mount Etna—*i.e.*, the rubbish-heap? Certainly not. He may do us good service, kindly treated, and be made to look most imposing in our gardens, holding a fair bouquet of Roses in each of his hundred hands. I mean that the vigorous Briars, from 6 to 8 feet in height, may be converted into

WEeping ROSE-TREES,

which, properly trained, are very beautiful. Buds of the Ayrshire and Evergreen Roses, of Amadis and Gracilis, Boursaults or of Blairii 2, Hybrid China, should be inserted, in three or four laterals, at the top of such standards as have been selected for their health as well as their height. Closely pruned the following spring, they may be transplanted from the nursery, or from the private budding-ground, in the autumn, and the removal must be effected with every possible care and attention. I would advise that these tall specimens be moved somewhat earlier than the usual time for transplanting, so that, when firmly secured in their place, and freely watered, they may be induced to make roots, and gain some hold of the ground before the winter begins. A strong iron stake, set side by side with the stem, and surrounding it just below the junction of the buds with a semi-globular framework, the whole apparatus resembling a parasol with a quadruple allowance of stick, will be the best support for the tree (fixed deeply in the ground, of course, as directed for the Pillar Roses), and will enable the amateur to dispose the branches at regular intervals, so that they will finally form a fair dome of Roses—such a floral fountain as may have played in the fancy of our Laureate, when he wrote

"The white Rose weeps, she is late."

And now we have passed through the Rose-clad walls—through the Rose-wreathed colonnades and courts of the outer palace—into the anteroom of that presence-chamber where we shall see, in brilliant assemblage, the beauty and the chivalry of the Queen of Flowers. We will pause awhile that we may arrange simultaneously our nerves and our court costume, the former troubled by a horrible suspicion that every eye is gazing derisively upon our black silk legs; and then let us enter to make, if that abominable sword permit, our loyal and devout obeisance.

S. REYNOLDS HOLE.

FRUIT-CULTURE.

THE VINE.

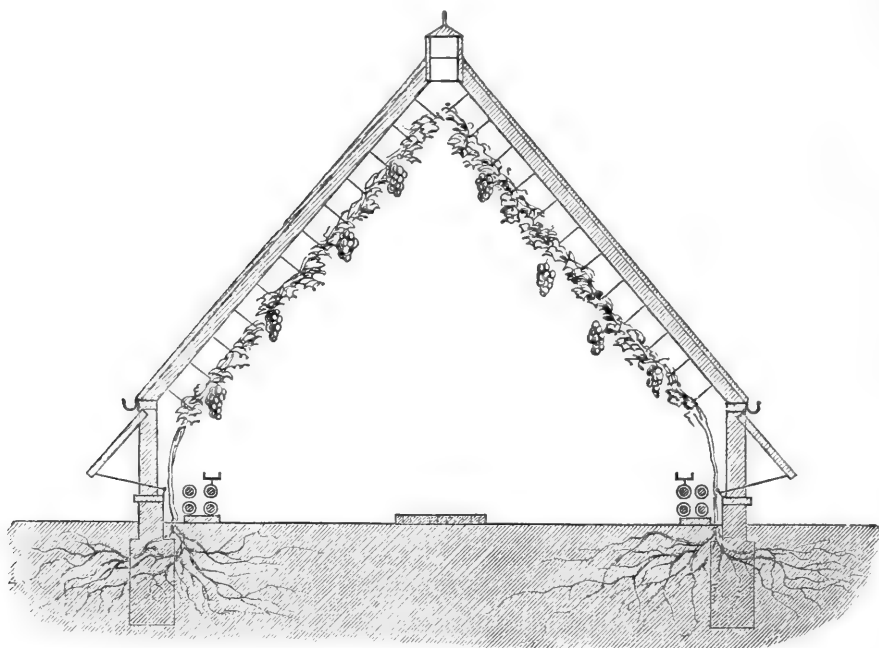
(Continued from page 75.)

A SUBJECT in connection with the formation of Vine-borders which is of no small consequence is the exclusion of wire-worm from them. If the soil is taken from pasture-land, or any land under grass, wire-worm will abound if the soil is taken from the field in fresh weather ; but if taken not more than 4 inches deep, and during sharp frost, the worm, and all other insects, will be left in the field, for they descend beyond that depth to avoid the frost. We have always acted on this suggestion, and never have had wire-worm in a Vine-border. When this pest is in the border, pieces of carrot or potato placed at intervals of one foot all over it, and covered with the soil, having a sharp-pointed stick stuck in each by which to lift and examine them daily, will soon clear the soil of them, though in the interval they not unfrequently do much damage to the roots of the Vine ; therefore prevention is better than cure in this, as in every other case of the sort.

There are many at the present day who are anxious to grow Grapes, yet have no access to parks or pastures where they can get maiden loam, and to whom we say, Do not let this deter you. Take the common soil of your garden ; if it is heavy calcareous soil, mix it with road-scrapings, old lime-rubbish, or burnt clay, and throw it into sharp ridges for the winter. During dry weather mix with it some portion of farmyard manure, a few bones, and wood-ashes if you can get them, and a few bushels of superphosphate of lime. Turn it over in frosty weather, and this will form the staple of your border. Make an effort to get a few cart-loads of fresh loam from the side of some road, ditch, or common ; mix this with a portion of decayed stable-manure, a few finely-ground bones, and a little old lime-rubbish. See that the whole is kept dry till wanted, then use it for the immediate planting of the Vines, and it will give them a start. After passing through it, they will thrive well in the soil of the garden made up as described.

We have a neighbour who is a keen amateur Vine-grower. His Vines were planted as here described in a few loads of good soil about fourteen years ago. They have ever since then been allowed to ramble at will in the common soil of his garden, which is light and poor. He covers the border, or rather that portion of his garden which the roots traverse, annually with a layer of cow-manure 4 inches in depth, and allows it to wash into the soil and feed the roots, the consequence of which is, that they are found in abundance close to the surface ; and his crops of Grapes, especially his Muscats, are the admiration of all who see them. The house is span-roofed exactly like the woodcut in this

paper. During very hot dry weather he waters freely with liquid manure made by mixing sheep and cow dung in water, with a handful of guano added, and sometimes soot.



Our ideal of a Vine-border would be some 12 or 14 feet of a border made of such compost as we described in the first of these papers, terminating in a well-formed Asparagus-plantation, which was not likely to be disturbed for a generation at least, and where the Vine-roots could rove at pleasure. Such a border as that we formed for a Muscat-house at Wrotham Park, in the county of Middlesex, in 1848, with the drawback, that there was a walk between the Vine-border and the Asparagus-brake. We, however, made the walk of such materials that the roots could easily cross it; and in reply to queries we have lately addressed to Mr Edlington, under whose able management the house is at this time, we have the following: "The roots of the Muscat Vines have traversed the border, which is 15 feet wide, passed underneath the walk at a depth of 2 feet, where they are as thick as walking-sticks, and are to be found in abundance at a distance of 60 feet across the Asparagus-brake, in which they seem to luxuriate amazingly. The Vines are in fine health, and every year they bear enormous crops without a single shanked berry." Our own opinion is, that no house in Britain has produced the same weight of fruit in proportion to its size that the one in question has done within these twenty years, and in great measure, as we think, owing to the access of the roots of the Vines to the Asparagus-ground.

A great deal has been written about the evils resulting to Vines from the descent of their roots to the subsoil, when that is of a hurtful character. This may in great measure be avoided by kindness to them on the surface of the border, where there is reason to suspect that their tendency is downwards. The surface-soil should be removed till they are reached. A number of the small ones should be carefully extricated from the soil in which they are going down, and a little nice compost laid under and over them; and it will be found that they will grow and branch in this new soil, and become the staple support of the Vine. A little attention of this sort once in two years will keep them near the surface, where they can easily be fed with liquid manure during the season of growth; for be it ever remembered, that when the Vine has plenty of healthy foliage on it, there is little danger of overfeeding it if the drainage is good. Some Vines may be fed till their berries become double their ordinary size; but, on the other hand, we have known the flavour injured by overfeeding. This, however, rarely takes place if the liquid is not stronger than 2 ounces of Peruvian guano to the gallon of soft water. We once grew a dozen plants of the Duchess of Buccleuch Grape in large earthenware pans about 18 inches deep and 3 feet wide, and gave them an excess of liquid manure, the result being that the berries were double the size we have ever seen them when grown any other way. They were, in fact, like average Hamburgs, and the flavour no way deteriorated. We took two successive crops from them in the same soil, and we believe we might have gone on cropping them for other two years had we been able to give them house-room. We believe that many people water what they call the Vine-border when the feeding-roots are far beyond its boundary, and they might save themselves the trouble for any good it will do.

We have planted a house 60 feet long with Vines, all except two of which will be constantly subject to bottom-heat from hot-water pipes under pavement, as shown in fig. 1 in the January number.

This house was designed for a Cucumber-house, and has a pit in it 2 feet deep by 5 feet wide. The roots cannot escape from the pit, nor is there any means of shutting off the bottom-heat. The two Vines that have no bottom-heat are planted over a rain-water tank. It may justly be remarked that this is not a fair test of the value of moderate bottom-heat for Vines, as it is to be applied in full force during the whole forcing season, especially as the house is to be the earliest one. Grant it; but it will be one that those who condemn bottom-heat for Vines cannot object to; and the two Vines that will have no bottom-heat will be there to testify against it if it is an evil.

W. T.

THE EDUCATION OF GARDENERS.

As you invite correspondence on this "vexed" question, allow me to offer a few remarks on the paper of A. W. in the 'Gardener' for March. Although I do not profess to attempt the solution of this question, nor to say that I quite understand what A. W. exactly means, there are certain rather lamentable statements in his paper, which, as they appear to me, are easily enough understood. And these statements are such, that when first read they create the inclination to fling them, as an insult to gardeners and gardening, back at A. W. "with all the force of a battering-ram." Such as "the true definition of gardening is dress and keep;" "There can be no connection between gardening and science;" "It follows that speculative" (by which it is supposed A. W. means theoretical) "knowledge is useless in learning the trade of gardening, for it is a practical business; the man, therefore, must exercise his hands." Surely this is bringing us down to the lowest level of rule of thumb, or to something little better than the instinct of the inferior animals! What would the medical faculty think were any one to say that the true definition of their profession is, Keep your patient's face clean and his hair well brushed; there is no need to study his stomach? What would the general think were any one (I sincerely hope A. W. is not a gardener) to say to him that the true definition of war was just pipeclay and blacking? There is a legend in the Highlands which speaks of a man who carried his head under his arm. What a capital gardener he would have made, could he just exercise his hands! Yet in the midst of all this condemnation of theoretical learning or knowledge A. W. writes about "the first principles of the practical." But finding these and such sentences as "knowledge is power—an intellectual substance," one is tempted to say—what they hope—that A. W. cannot be accepted as an authority on the necessity or non-necessity of theoretical knowledge or a "theoretical intellectual substance" in fitting a man for being an intelligent practical gardener. But conceiving that the drift of A. W. is to show that theoretical knowledge—say, for instance, of the structure and functions of plants, or of any of the sciences, which, as clever men are teaching us, bear upon the many points of horticulture—is of no service in the practice of that profession, I can abstract no other meaning from his remarks. I beg to differ widely from him, and have no hesitation in saying that the gardener who has not studied the structure and functions of plants, to say nothing of the many other principles with which a gardener has to do, labours under a very great disadvantage, as compared with the man who has acquainted himself

with these matters. If this is not correct, then such men as Knight, Lindley, and Liebig have spent their strength for nought.

While holding this doctrine, I am by no means indifferent to the surface-gloss of "dress and keep;" but for anysake don't let us be degraded by saying that these two words are a "true definition" of gardening. Some places, no doubt, would be improved by a little more of this definition, but we have known some place so "dressed and kept" that there was scarcely any gardening left about them. I may be told, "Oh! see what splendid specimens of plants and fruits Mr So-and-so grows, and no one will give him credit for any knowledge of the functions of plants, or anything else that science teaches," and he is far more celebrated for incessant noise among pots and pans than for anything besides. This, I hold, proves nothing against theoretical knowledge. And though it must be granted that one man *seems* to have an intuitive knowledge of the requirements of plants, this does not prove that such a man would not be improved by a sound theoretical knowledge of what is involved in his practice. It may prove that nature has endowed one man with a better capacity for the practice of gardening than another—nothing more. And I am persuaded that if we were to look a little more closely into the lives and gardening practice of those who are considered gardeners by intuition, we would find their success to depend on a restless nervous disposition, application, and perseverance; and who will say, that, if in conjunction with these qualities—without which never man became great in anything—they had just to some extent mastered a little vegetable physiology, chemistry, and natural philosophy, they would not have been saved many a blunder, many a tumbling among pots and pans, and have become better gardeners, still better members of society, and men from whom we would learn more? The extraordinary results effected by sheer industry and perseverance, in conjunction with, or rather as the result of, a love of gardening for its own sake, are no doubt calculated to lead many to doubt if anything more be desirable in the make-up of a gardener. Now, I am as deeply impressed as any one can be, as the result of my own observation and experience, that in gardening, as in every other vocation, some youths will never shine; but I hold at the same time that it cannot be demonstrated that the garden-loving and persevering rule-of-thumb man would not be improved by a sound theoretical knowledge of the operations he is called upon to conduct or perform, and all who are aspirants in this humble walk of life cannot neglect such knowledge with impunity.

This again involves to some considerable extent what is properly termed a school education as a prior training for the mind, and furnishing it with the tools and habits of accumulating and applying the

knowledge necessary for practical life. And who are there amongst our leading gardeners who have not felt their loss on this point, or are content to let their sons into the world with the meagre elementary education with which they were compelled to begin their profession? And although we find men amongst gardeners, who for general information would be no disgrace to any society, and who can commit their thoughts and views to writing with a clearness and force which surprise their "betters"—to what do they owe these advantages? certainly not to a neglect of theoretical knowledge, nor to the neglect of elementary school education, but, to their honour be it spoken, to their self-tuition and culture, to their self-denial and self-respect and perseverance. Apart from this view of education, it is exceedingly desirable that gardeners introduced to the management of such gardens as are designated good situations, should be men who have at least such a measure of education as will be one of the means of raising the status of a profession which adds so much to the pleasure, luxury, and civilisation of the whole community. It is much to be regretted and reprobated, too, that men who have so thrown away their opportunities, and neglected themselves so much, that as a consequence they cannot write a note of half-a-dozen lines without in the most grotesque manner possible violating the commonest and all the rules of grammar, should by some extraneous influence be introduced to the care of first and second rate gardens. These are the men who accept low wages, and hang as a dead weight on the profession. I say, Save our gardens from such men! I could name cases where the most illiterate men, and unproved gardeners too, are thus succeeding to good places, and on whom what I have said is no libel.

A word to young gardeners. If you do not acquire the education necessary to play your part well, not merely as an intelligent practical gardener, but somewhat in unison with the age in which your lot is cast, it is your own fault; and the sooner you give up a profession which requires so much forethought and intelligence, the better for it and for you. You have plenty of spare time. A few shillings can purchase all the books and material which are needed to raise your education beyond contempt, and to pursue the many points of your profession with intelligence. Genius is not necessary. Genius has been described as common sense intensified; industry and dogged perseverance would make geniuses of most of us. Dr Johnson once said that some men learned more by the tour of Hampstead Heath than others did by the tour of Europe. And why? Because the one had acquired the habit of *noticing*, and the other had not. That is one of the grandest faculties that ever entered a garden. *Noticing!* while you learn to "wield the ponderous spade" with dexterity, remember that "elegance, chief grace the garden shows, is the

fair result of thought," and try at the same time to penetrate into the fibre of the phenomena which are presented to you every day in the garden. "Genius is patience;" so said Buffon, and he was constitutionally indolent, and born to good estate. But instead of indulging his besetting feature of character, he denied himself; and I hope most of my young readers know something of what he accomplished by patient application, and throw to the winds the idea that they must be born geniuses in order to succeed. Activity and attention in the garden, and self-culture in their spare hours, will prove their own reward. Some walk as if there were a millstone at every foot, and as if the garden were a loitering-ground, and spend their time as if they had no mind to cultivate, and had nothing above their mustache to be of any value to them. Such men will seldom find fortune on their side, as the winds and the waves are on the side of the accomplished mariners.

It may be said that the garden is no field for scholarship to reap that reward which it deserves. In its present prospect it certainly is not. It is nevertheless a sphere which gives vast scope for that research and study, to pursue which with intelligence and success it is necessary that a youth should at least have a sound elementary school education. I know full well that young gardeners have a deal to discourage them, and that the prospect before them is not the most stimulating. But it is only the common story of life in general—the road to success is not easy. It is well for human nature that it is so. But depend upon it, success in gardening is not attained without hard work. Many are disheartened because they cannot get to the top of the ladder without taking the intermediate steps. I once read of an architect who travelled all the classical lands of the East for improvement, and without friends determined to begin anywhere; and accordingly took a business connected with dilapidations—the lowest and least remunerative department of his calling. And one hot day in July a friend found him astride a roof, and, wiping the sweat from his brow, said, "Here's a pretty business for a man who has studied all the classical architecture of Greece and Rome." He did his work well, and rose to the top of his profession. Again, some consider themselves born to ill-luck, like the unsuccessful man who mourned over his misfortunes, and declared if he had chosen the trade of hatter people would then have been born without heads. But such men, it will be found on investigation, are as a rule reaping the reward of their own neglect. It is a mistake to suppose that because a young gardener cannot get into a first-rate place for his first, the way of further success is barred to him. But let him do his work well in the smallest, and the chances are, not that he will remain there, but that he will climb to the highest.

DAVID THOMSON.

THE CULTIVATION OF HARDY FRUITS.

THE PEAR.

(Concluded from page 113.)

THE only disease to which the Pear is liable in this country, so far as I have ever seen or been able to ascertain, is canker: there may be others of which I am not aware, but never having come under my observation, I shall confine myself to this one, which at all events works great havoc in many places. Various causes are assigned for its appearance, and surrounding circumstances often come in for a share of the blame. Any or all of these may to a great extent be the cause of it, yet it is our firm opinion that where the trees planted have been selected to suit the climate, and treated something after the fashion already recommended, the disease may at all events be greatly modified, if not entirely prevented. Mr Thomson in the 'Gardener's Assistant,' see page 509, cautions against extremes of moisture and dryness, and goes on to say that "where canker makes its appearance the soil should not be made too rich, for over-luxuriance of growth seems to encourage the disease, at least in our variable and ungenial seasons." Now I find, in turning back to page 499 of the same work, that he says, in speaking of the soil suitable for the Pear, that "it is essential that the tree should start vigorously, and therefore, if the soil is not naturally *very rich*, a compost in which to plant the tree should be formed. A mixture of good turfy loam and farmyard manure will be very suitable." Now I cannot reconcile these two facts, that first he should recommend a *very rich* compost as being best suited for the Pear, and afterwards say that the soil should not be too rich, as such will encourage the disease. It is our opinion that the soil he has recommended is exactly what the Pear requires and flourishes best in, but that he makes a mistake in thinking that too rich a border is the harbinger of this disease: in fact, the reverse is our opinion, for we think that a poor and cold soil has far more to do with it than anything else. Let any one who is troubled with canker make the following experiment, and prove the fact for himself. His border may be made up of the very best and most suitable soil for the Pear, and he may be of opinion that over-richness is the cause of it. Let him, however, examine, and he will find that the roots of his trees have gone beyond the depth of his prepared border, and penetrated into the cold and bad subsoil. Now I know it is a very prevalent belief that a tree will not leave the good soil prepared for it and enter that which is inferior in quality. All this I believe to be perfect moonshine, as I have seen the reverse over and over again, one or two instances of

which I may give. Seven or eight years ago I saw a vine-root at Dalkeith, which had passed away from the well-made borders, pushed its way through a broad gravel-walk, and was found a great distance down in the vegetable ground—if I remember correctly, 73 or 93 feet from the vinery. The next case is that of a young vinery which was planted here in April last year, and for which a border of 8 feet wide, 4 inside and 4 outside, was provided, of the best materials to be had, and which was deemed sufficient to keep them growing for the season. In January of this year, when removing the remainder of this inside border, to be replaced with good soil for their further progress, we found that hundreds of the roots of the young vines were running through the cold sour material that formed the original border made fifty years ago—many of these roots having penetrated to distances of 2 and 3 feet. We have brought forward these instances to prove the fact that, plant in the best materials to be got, if you allow the tree its own way it will in a short time penetrate the cold and unwholesome subsoil, which will gradually poison the sap, the result of which will be canker, and consequently premature decay. The true causes of canker in the Pear or any other tree are twofold; viz., a too cold and too moist soil to live in. If the roots penetrate to a depth of 4 feet, the fact is, that at that depth the soil is several degrees colder than at 2 or 3 feet, and as a consequent result the tree is longer in a dormant state, and has not the time and opportunities necessary for making and ripening its wood. And further, at that depth the soil is generally soaked with water, which surcharges the whole system of the tree with aqueous matter; and as there is no outlet for it in the shape of perspiration until the season advances, the tree, when it begins to grow, rushes into rapid growth, and makes what are called soft watery shoots, which never ripen properly, and which tend to encourage the disease. The only cure for canker is to lift all affected trees, remove the deep-penetrating roots, drain the border thoroughly, plant the trees afresh in a good sound compost, and attend regularly to root-pruning for all time to come. If these things are attended to, we are very sanguine that the results will prove good.

The insects which attack the Pear are more numerous than the diseases. The first we will notice is the scale *Aspidiotis ostreæformis*, which is a very small insect (oyster-shaped, as the name indicates), but which often does a vast amount of damage by attacking trunk and branches as well as the fruit. It is always of the same colour as the bark upon which it lodges, and being so small, it may pass a long time unobserved, unless a strict watch is kept for its appearance. They have a hard and shining look, and often are dotted all over the branches like thousands of little specks, if allowed to breed to any

extent. When they become very numerous, they not only lodge upon and injure the bark, but also attack the fruit, which after being attacked is almost useless for any purpose save the kitchen, as they adhere so firmly to the skin that they cannot be removed without much injury to the fruit. The best and most effectual cure for them is to syringe the trees in winter with boiling water. This may be done without the least fear of harm to the trees in mild open weather, when they are quite dormant. Spirits of tar have been recommended, is well as several other things—such as train and linseed oil—but to paint a tree all over with any of these would be to adopt a cure as injurious as the disease. The boiling water applied at the time we have recommended, and directed over every branch and crevice of the tree, will at once and for ever eradicate the whole colony.

The *Aphis pyri-mali*, or Pear-and-Apple fly, often makes great havoc upon the young and tender leaves. One year they may be very bad, the next they may not be seen to any extent, while the following year they may begin with renewed vigour. They commit the whole of their damage upon the leaves, inserting their proboscis into the leaf, from which they drain the life-blood, after which the leaf withers and dies. Mr M'Intosh, in his 'Book of the Garden,' has recommended several remedies, the best of which we believe to be syringing the tree with a strong decoction of tobacco or tobacco liquor. He further recommends "1 lb. quicklime, 1 lb. snuff, 1 lb. sulphur vivum, $\frac{1}{2}$ lb. lamp-black, 1 lb. soft-soap, mixed together in water until the whole forms into the consistency of thick paint, applied by a painter's brush to the branches in February, taking care that every part of the tree is covered with the mixture."

Another very destructive insect is the *Curculio pyri*, which by some has been believed to be the same as *Curculio pomorum*, which attacks the Apple. Although in a perfect state these two weevils are identical, yet in their first stages of development they are widely separated, both as regards their form and habits of life. The Apple weevil does not commit such wholesale destruction as the one belonging to the Pear. The one contents itself with the blossoms only, while the other attacks flowers, flower-buds, as well as the wood-buds. Kollar has said regarding the Pear weevil of this family, that "if a Pear-tree is examined at the time of blossoming, it will be seen that many buds are brown at the points, as if affected by the hoar-frost. If these buds are examined closely, there will be found a dirty-white rugose maggot, with a dark-brown head, which in time is changed to a small weevil. It is scarcely more than 3 lines long, brown, with a white uneven band almost in the middle of the elytra, and two black shoulder-spots, therefore perfectly like the Apple weevil. This insect probably passes the

winter under the bark, or in the earth near the stem [the latter position being in our opinion the most likely place]. Early in spring, when the Pear-tree begins to bud forth, the female lays her eggs in the buds, which become brown by degrees, and fall off when the insect has attained its most perfect state." As will be seen by the foregoing, the destruction made is very complete ; and as it would be almost impossible to gather the larvæ with the hand, the most effectual cure is to sacrifice the crops for the time being by removing every bud which appears infested, and in the following year, early in spring, to bind a piece of cloth round the stem of the tree of a few inches in breadth, which must be painted over with tar, and have repeated paintings whenever the first coat becomes dry, which will prevent the little insect from rising out of her winter bed to make havoc for another year.

Luperus rufipes, or the red-footed beetle, is one of the greatest enemies the Pear cultivator has to contend with. Its depredations are confined to the foliage alone, but in the course of a few days it will riddle almost every leaf upon a good-sized young tree if not caught and destroyed. On a stock of young Pear-trees brought here last year I found it to some considerable extent. Being from home for a few days in the beginning of May, on my return I found about twelve trees out of six dozen had suffered rather severely. When I left, no trace of them was to be found ; and on my return I found one tree, in particular, had nearly all its foliage destroyed. The leaves were perforated over and over, in many cases perfect skeletons, and those which were not so much eaten were curled up, and from three to twelve of its little enemies inside thereof. The body is of a dark shining or maroon colour, while its feet are of a bright red, hence its name. Like all the beetle family, it is rather impatient of strong sunshine, and therefore commits its deeds in early morning, and from sunset till dark. This, therefore, is the best time to destroy them ; but as the least movement of the tree is sure to cause them all to drop to the ground, much caution has to be exercised in order to get them—in fact, approaching the tree in a quick hurried way will cause them to drop. To destroy them, approach the tree with caution, spread a sheet or two underneath it, and give the tree a gentle shake, when they will drop thereupon ; then pick up the sheet, carry it away, and sink it for the night into a tub of water. This done for two or three nights in succession will probably destroy them all. There are several other weevils and beetles which are said to infest the Pear to a greater or less extent in Britain, but the foregoing being all with which we are familiar, we must just refer the reader to the leading works upon gardening, where the most of them are described.

There are several of the moth family which must be familiar to every

Pear cultivator in Britain, and which do no inconsiderable amount of damage to the leaves and wood in some localities. The first of these which we shall notice is the *Selandria atra*, which is perhaps the most common as well as the most curious of them all. In its caterpillar state it is of a black slimy appearance, resembling very much the little black slug so familiar to all kitchen-gardeners—hence is it popularly known as the slug-worm. Their depredations are always committed during the night, for although they generally remain during the day on the under part of the foliage, they never appear to do any injury there, as all the eating is done upon the upper surface. They change their appearance several times, giving off a greenish skin, which is followed by one of a buff colour. In a week or two after this transformation they descend into the soil, where they remain till the following June, when they appear in their fly shape, and at once begin the propagation of a fresh generation. The most effectual cure is to syringe the trees affected with a strong decoction of tobacco-water, and the best time to apply it is towards midnight, when they are sure to be upon the upper surface of the leaf, and consequently in a better position to receive the water.

Another of these most destructive insects is the *Astyages hemerobiella*, but fortunately its visits are more limited than that of the one just noticed. It may make its appearance once, and not be seen again upon the same tree for years to come, or, at all events, in very limited numbers. The caterpillar is of a lightish brown colour, encased in a brown-coloured cylindrical case, from $\frac{3}{8}$ to $\frac{5}{8}$ of an inch in length, from the under end of which the head of the insect is from time to time thrust out. Its mode of attack is very different from that of the *Selandria*. It attacks the upper surface of the leaf, merely cutting through into the cuticle, when it places its mouth upon the opening thus made, and, erecting itself into a standing position, with its head down and at right angles with the leaf, it feeds upon the parenchyma. In this manner it continues to work until it has made an opening between the upper and under surface of the leaf, when part of its body is introduced, so that it mines out the leaf to a considerable distance round the place of its first entrance. Being of a much larger size than the former one spoken of, it can be easily seen and gathered by the hand; but if they should be in great numbers, the remedy recommended for the *Selandria* can be applied. These being the two principal moths or caterpillars with which we are acquainted, we shall refrain from enumerating any of the others, which are described in many other garden works, and shall simply say that we believe the most of those which attack the leaves of the Pear can be destroyed, either by hand-picking, or syringing with tobacco-water. In

the case of those, however, which attack the flowers and the eyes of the fruit, the case may be different, and for fuller and more accurate information regarding them I must refer the reader to those works I have already spoken about. We in this country have not nearly so many living enemies to contend with in our Pear-cultivation as several of our neighbours, but what we want in this respect is amply made up to us in the shape of late spring-frosts and easterly winds.

It will be gathered from what has already been said, that a good rich compost is necessary for the Pear. It is a very great mistake to think, as many gentlemen do, that Pears, or in fact any sort of fruit, will do well enough if planted in good garden mould, without any additions being made thereunto. No doubt tolerably good results attend the planting of them in this way in many places, but there can be little doubt that much of the after disappointment and failure of fruit crops is to be attributed to the want of the proper formation of borders. Where tolerable results are obtained without the formation of good new borders, it is an evidence that the Pear suits the locality, and that if new borders on a good principle had been made, fruit of the very highest quality would have been the result. In the making of fruit borders, the first thing to be attended to is the drainage, which ought to be complete; and for this purpose I would recommend a drain of at least $3\frac{1}{2}$ feet in depth to be made every 15 to 30 feet, according to the dampness or dryness of the locality. If a fall of 1 in 20 feet can be obtained, so much the better; and these drains should run into a main drain near the box, to be carried off to the nearest place of discharge. Where the rock is to be got at a depth of 3 or $3\frac{1}{2}$ feet, as we have it here, the drain-tiles may be laid thereupon, and with such for the bottom it is quite unnecessary to concrete or flag in any way; but where a cold deep subsoil exists it would be very advantageous to do so, and place the tiles upon it. Upon this may be added 9 inches of good rough stones, or bricks broken up with a hammer, which will leave about $2\frac{1}{2}$ or 3 feet for the soil. We shall premise that the required quantity of soil has been obtained from a good old pasture, and been put up into a ridge for a few months. The best soil for the Pear is a good rich mellow loam, not too light, but rather inclined to be heavy. This having been obtained, let one load to at least every eight be added of the best stable or farmyard manure, with charcoal or wood ashes in considerable quantities, as well as a good addition of crushed bones, where good fruit is more an object than the expense incurred. Let these all be turned over once or twice to get thoroughly incorporated, after which it may be placed in the border after a layer of green turf has been put therein, to prevent the soil from running at once down through the rubble. This operation completed, the plant-

ing of the trees may be proceeded with at once as already directed ; and I may here state that a considerable gain is effected if the trees can be procured and planted about the middle of October, or even earlier, before the leaves fall. In the case of trees, however, which have to come a long distance, this would be impracticable, as they would become *heated* upon the journey, and consequently much injured.

We now come to speak of the distances which ought to be between the trees at planting. This will depend entirely upon the mode of training and the stock used for grafting. If the Quince has been used, and the trees are intended for pyramids, the distance need not be more than 12 feet, or 15 at the most. If on the Pear stock, the distance ought not to be less than 18 feet if intended for border lines ; and if intended for an Orchard plantation even more will be necessary, say from 24 to 30 feet, according to the size they are to be allowed to grow. If the trees are to be planted against the wall, the distances in this case will be regulated by the height of the wall as well as the stock used. For a wall of 8 feet in height the Quince will answer very well, and the trees may be planted every 12 to 14 feet. Where the wall is from 10 to 12 feet, or higher, the Pear will suit better as a stock than the Quince, as it will grow quicker and fill up the space sooner. For a wall 12 feet high, 18 to 20 feet is a good distance to plant, while 20 to 24 will be better where the height is 15 or 16 feet. It is seldom that walls are much higher than this, but a good guide to planting is to put the trees one and a half times the distance from each other that the wall is in height. When the trees deviate much either way from this rule, they do not look so proportionate or so well. Nothing looks worse than to see trees upon a 15-foot wall planted every 14 or 15 feet ; or, what is even worse, to see a 9-foot wall with the trees planted 24 or 30 feet apart.

In concluding this chapter upon the Pear, it may not be out of place to make a few remarks upon walls. It is now a demonstrated fact, that of all materials used for garden walls, there is none so suitable, or which answers the purposes of fruit-culture so well, as brick. These, however, ought to be of the very best quality, as nothing can be more teasing than to see the bricks decaying from the effects of the weather, in the course of a few years after being built. The difference between good and inferior bricks is very trifling, while all the other materials and workmanship will be the same. The good old rule, therefore, holds good in this as in other cases—viz., get a good material, pay a good price for it, and you will get good satisfaction out of your bargain. The thickness of the wall will depend entirely upon the height thereof. A wall 9 inches in thickness—that is, one brick thick—should not be more than 6 or 7 feet

high, as if higher they are sure to be soon affected by frost, rain, and wind to such an extent that their security is doubtful. A wall from 6 to 12 feet should be $13\frac{1}{2}$ inches thick—that is, one and a half brick—which makes a very substantial wall, and at the same time does not require piers to strengthen it, which, at best, mar the beauty of the whole, while I am rather sceptical whether they met the end in view or not. All walls above 12 feet ought to be 18 inches in thickness, which will give them strength enough to resist the fiercest storms with impunity. Walls of this thickness may with benefit be made hollow, which does not in the least weaken them, while they are said to be warmer than those built solid. Various materials have been used for copings, but none answer the purpose so well as stone. Stone copings are more expensive at first, but the cheapest in the end, as all sorts of compositions are sure to crack in the course of time, and the rain entering through these cracks destroys the wall. Copings ought to rise in the middle and slope to the edge; and I would recommend that a gutter be cut along the edge 2 inches broad and one deep, which would prevent the drip from falling, as it often does in great quantities, upon the branches, foliage, and flowers of the trees, to their great injury and hurt. If the coping is cemented together, the water could be led through these gutters to small lead pipes placed every hundred feet, which could empty themselves into the drains at the bottom of the walls.

About most places the south walls are all covered with either glass, Peaches, or Apricots. The next best situation must therefore be selected for the Pear. Most gardens are so placed as to face the sun from 10 to 11 A.M. In such a case the west side of the walls will be the best for the Pear, as it will not only be less exposed to the easterly winds and spring frosts, but will therefore have one hour more of the sun in this position than any other which could be assigned to it, unless the south; and many varieties of the Pear merit the latter position, which they do not often get.

JAMES M'MILLAN.



HINTS FOR AMATEURS.—APRIL.

IN gardens where operations are as forward as they should be, every part will now begin to assume a spring-like appearance. Where time will allow, borders which have been turned up roughly may now be broken down by the hoe; or if stiff and tenacious, a four-pronged fork may answer well. It may be advantageous not to rake the surface too finely, as by this practice the soil becomes “caked,” and weeds thrive

better than any other plants. Among bushes and fruit-trees the ground may remain in its rough state, if not wanted for cropping, and free from weeds. All this kind of work can be regulated according to strength of labour. Before expending time in "keeping and dressing," let the primary objects receive attention, which are the sowing of seeds, planting, &c. However, when weeds show themselves, they should be destroyed as early as possible; it is economy to use the hoe among them as soon as they can be seen above ground. It may be necessary to weed with the hand among crops coming through the soil; the rows can be gone over, and the spaces between them hoed well; this is of great importance to the wellbeing of the crop, as well as destroying the weeds. All paths, borders, and plots of ground should now be gone over, and measured out to their size, taking the lengths or widths from the walk-edgings. If borders are round the sides of the walks for fruit-trees, &c., it is necessary to have narrow paths to divide them from the vegetable plots, as well as to walk round without treading upon either. Espaliers, when well managed, are of a double service, by giving crops of fruit, and separating the vegetables from the flower-borders. Nothing can be more distasteful to the eye than to see borders of flowers, however beautiful and well kept, with untidy vegetable ground immediately behind them. Shrubs of an ornamental character are the best plants to use as a screen; but Sweet Peas, Scarlet Runners, or trained Roses, answer well, though they do not improve the appearance of the borders, there being no relief to the eye. All growing crops require to have the hoe or fork freely among them, keeping the surfaces open and healthy. Where drills were drawn before planting Cauliflower and Cabbage, the hoe passed carefully among the plants will place the soil around their stems, and act as a gentle earthing-up. On dry sandy soils a little manure or leaf-mould, placed round each plant before hoeing, will be of great service in aiding vigorous growth, and help to prevent premature buttoning. Potato-planting should be brought to a close. When the ground is well prepared and in a loose state, a strong dibbler for planting them will get through the work speedily. Deeply-drawn drills and a coating of leaf-mould placed in them is a good practice when planting, especially for the Kidney kinds. To have them fine for exhibition, planting widely apart, and using fresh turfy soil, will be a great help. Those grown under protection will require covering at nights for some time to come, weather is so deceiving till the end of May. If weather is wet, it will be much against the sowing of small seeds, which must be sown this month; every dry opportunity lost is a fresh risk. The value of old dry soil, however poor, stored up for covering seeds sown on uncongenial soils, is known to cultivators in

wet seasons, such as the present has been so far as it has gone. As there may be potting going on for some time, all old material should be harvested in dry quarters if at disposal. Broccoli of all kinds may now be sown in beds, or, what is better, shallow drills, and every sixth one left unsown, so that cleaning and weeding may be done without treading among the plants. Walcheren, Autumn (Granger's), Snow's Winter, Knight's Protecting, Gordon's Late and Carter's Champion, will give a supply from autumn till Cauliflower comes in. Broccoli (German greens of some), Cabbage of sorts, Brussels Sprouts, Cauliflower, and any other kinds of green vegetables for autumn and winter supply, should be got in from the beginning to the middle of the month. Broccolis require to be sown in succession to the middle of May in Scotland, and to the first week of June in England, varying a little according to latitude. Lettuce may be sown for succession in small quantities, and if ground can be spared the seed could be thinly sprinkled in drills where the crop is to grow, on finely-broken well-manured soil. The seedlings would soon appear, and could be thinned out gradually as soon as they could be handled, and some of the best thinnings planted behind a wall or other shady position to give a succession. Bath Cos, Paris Cos, Imperial White Cos, All-the-Year-round Cabbage, and Drumhead Cabbage, are among the best kinds we have tried. Endive may be sown and treated the same as Lettuce, but it requires more attention to blanching, by tying, &c., than Lettuce. Parsley may be sown for succession, and as it takes long to come through the ground, it is well to have two or three sowings. Short-top, French Breakfast, red and white Turnip Radish, may be sown in small quantities as required. Those growing may require to have coverings of litter or other material given at night if frost prevails. Spinach may be sown among other crops. Where the ground is loose and rich it soon goes to seed, therefore it requires to be sown frequently. New Zealand Spinach, sown in heat and grown on and planted out when frost is past, is very useful in hot dry seasons. Turnips may be sown in small pinches, and frequently, to keep up a supply of young ones. White Dutch Snowball, Red Stone, and White Stone, are good kinds for first, second, and late sowings. In some catalogues we observe that Snowball and White Stone are given as the same kinds, but we consider them very distinct. Snowball is handsomer and whiter than the Stone. The latter comes in better for late autumn supply. Beet may be sown late in the month, or left till May if not required early. Sang's Own saved is one of the best out of a great number we have had for trial. The last dry season it was exceedingly fine on ordinary soil. All roots, however, do best on deep well-worked soil free from fresh manure. Carrots may be sown for a main

crop. A good plot of Carrots is seldom seen in gardens, and many do not attempt to grow them. We have tried every plan that we have heard or read of to grow Carrots free from the ravages of grubs, but at times only with moderate success. Where Leeks were grown, and a good mulching of grass-mowings given as soon as the Carrots were thinned, and repeated dustings of soot in wet weather, we secured an excellent crop one season, but partially failed the following. We intend this season to sow Leek seed along with the Carrot, and mulch as usual: if Leek is distasteful to the enemy, it will thus have the nuisance always present. Sandy soil, not very rich, grows by far the finest-flavoured Carrots; heavy wet soil gives large roots, but they are coarse. Early Horn, James's Scarlet, and Altringham, are good kinds for general use (early and late).

More Peas may be sown, also broad Beans as formerly advertised. Laxton's Prolific, Champion of England, Essex Rival, Harrison's Glory, and the Prince, are kinds which will do well sown this month. Stake Peas as soon as they are a few inches high; much injury is often done by allowing them to blow about with the wind. Asparagus (to keep up a stock of plants) may be sown on deep light soil, if necessary, in rows; 18 inches apart will do. The seed should be sprinkled in thinly, and covered an inch or two, making the soil fine with a rake. Kidney Beans may be sown in a warm and sheltered position; they often perish in the ground when early sown, and are seldom so strong or much earlier than those sown in the first or second week of May. Scarlet Runners are of a similar nature; we sometimes secure a good early row by covering the plants with flower-pots every night till frost is past. A frame for a few weeks is most useful for protection; when they are required before the usual time, we employ a frame and a spent hot-bed for latest forcing crop of French Beans, making use of the frame for other purposes when done with for Beans. When sowing seeds which are rather tender, it is well to expose the drills to the sun for several hours, sowing and covering up dry and warm. A full supply of Celery may be sown in a frame, or under hand-lights; keep the temperature even, and prevent the seedlings from becoming either dry or sodden with wet. Prick out those that are fit to handle on a bed (formed on a hard surface) of rotten manure, 3 inches or so deep, and an inch or two of fine soil placed over the surface: put in the seedlings, and water them thoroughly when they require it: shade from hot sun. Hardy herbs and Rhubarb seed may be sown in light soil if required. Salsify and Scorzonera may be sown and treated like Parsnips, but not thinning so severely. Chicory is a useful plant for lifting and blanching, its fresh-grown tops to be used with salad in winter. All seeds sown in the open ground, which are devoured by

birds and slugs, should be looked after in due time. Red-lead, sown with the seed, is often used with success against mice and birds ; wood-ashes and coal-ashes, free from dust and the rough parts, are useful against slugs. Nets to keep off birds are almost indispensable. If any crops do not make their appearance above ground in due time, fresh sowing should be made without delay : this applies to Onions, Carrots, and Parsnips especially. If the ground is parched before sowing small seeds, let the drills be watered and the seed sown, covering up at once. Cucumbers for ridges, Vegetable Marrows, and Tomatoes, may be sown, if not already done : let them be shifted to larger-sized pots before they become pot-bound : keep them growing steadily, giving air in fine weather, gradually hardening them till they can be planted out in their permanent quarters. If Cucumber and Melon beds are falling in temperature, give fresh linings with warm stable-dung : train the shoots across the beds, but not crowding them. Pinch the tops out of Cucumbers as soon as the fruit shows itself : do not let too many swell at once ; be guided by the strength of the plants. The shorter-growing kinds are most useful when their appearance is not a consideration. When either Melons or Cucumbers are opening their flowers (female), water should be withheld till the Melons are as large as hens' eggs, and the Cucumbers 2 inches long. Though this applies most to Melons, yet it is all the better for Cucumbers in dung-beds ; there will then be fewer fruits decaying at their points.

There will not be much to do to fruit-trees this month, except the thinning out of wood and flower-buds. We again offer the caution not to allow overcrowding of the wood—3 or 4 inches between each shoot would not be too much ; and when the bearing-shoots for next year's supply of fruit are the length desired, let the tops be nipped out. Any that are growing too gross and watery require to be frequently topped as they grow, otherwise they would monopolise the whole vigour of the trees, and bear no fruit. Keep all close to the walls, and save all natural spurs, which are always certain to be fruitful. Where time can be spared to separate clusters of flower-buds it would be well-spent work, as thickets of flowers often prevent each other from setting. The petals should have at least room to expand ; and the flowers best exposed to light and air, as well as being close to the walls, are the ones which should be left. This applies particularly to Peaches, Nectarines, and Apricots, though Apples, Pears, and Plums can be improved where time can be spared. Figs which have been protected with strawbands, &c., may be taken down, the dead wood cut out (if any), and the shoots nailed and tied up in their places ; but it may be necessary to have a covering to throw over the trees at night, as frost would ruin the young fruit. After the

trees have shown what fruit they are to bear for first crop, a little pruning may be done, gradually cutting back long shoots, and otherwise regulating the tree. It is an easy system of training Figs as Pears are generally done, allowing shoots to run from top to bottom, training the side-shoots right and left, and topping each young shoot at fourth or fifth leaf, training to the wall what is required, and cutting clean off what are not wanted. Under glass we allow the trees to have more of their own way; however, spurring so far as we can. When too gross, we either lift the half of the roots or cut some of them in, doing it wholly by degrees if necessary. When there is plenty of fibre any quantity of "feeding," almost, might be given. When the long leading shoots do not break freely we cut a notch half through the wood above each joint, and a string of sturdy shoots soon make their appearance. It may not be out of place, by way of a "reminder," to say that any grafting that is to be done must be seen to at once. The shoots, though they have their ends in the ground, will soon shrivel. It is unnecessary to go into details here, taking up valuable space, as everything in connection with grafting, &c., is minutely given in the 'Gardener.'

Tender annuals, such as Asters, Marigolds, &c., should be sown in a frame with a very gentle heat, covering them lightly with fine soil. If the beds of any kinds are made up with leaves, slugs may be troublesome; dusting of lime over the surface before the soil is placed will help to keep them down. Red-lead and hellebore powder we use freely for slugs, as well as to prevent woodlice eating young plants; we have had them in thousands this season, devouring young Cucumber plants, Verbena cuttings, &c. Among other traps, flat pans of treacle have caught many. Small flower-pots stuffed with hay and dipped in boiling water has also thinned their numbers. Red-lead, soot, lime, and hellebore powder, laid down the sides of frames, make their quarters uncomfortable. We would suppose syringing plants with Clark's insect-destroyer would be a preventive. Spring flowering bulbs will require attention. Hyacinths in flower, and Tulips coming in early, will require protection from frost and rain, and to be shaded from sun; stir every surface, breaking all lumps, and gently press the soil round the collars of the plants. Sweet Williams, Polyanthus, Rockets, Hollyhocks, and others of the more hardy kinds of plants, may be planted out where they are to remain. Auriculas will now be near their blooming period; they will require shading from sunshine, and to be kept protected from heavy rains, with abundance of air, but no check from any cause should be permitted. Carnations and Picotees may now be potted in good-sized pots, using plenty of drainage, and the healthy soil prepared as formerly advised; press it gently round the ball, and water

enough to moisten all the soil. Any plants pot-bound must have the roots undone a little, and if the ball is very dry, it should be wetted through by placing it in a pail or tank of water: this treatment is necessary when potting all kinds of plants. A dry hard ball placed in fresh pots, though ever so well attended to, will do very little good, and probably the plants may gradually die off. Moisture through the whole ball of soil in pots is of the greatest importance with pot-culture; water given only to wet the surface, leaving the principal roots dry, is a slow but certain way of killing plants. Watering, when repeated too often, is also very injurious, especially when plants are tender and in cold quarters. It is hardly possible to mention the various soils suitable for all kinds of plants, but we might mention that few things do not thrive in a mixture of loam, peat, charcoal, and sand in equal parts. Plants becoming too large may be cut back after they have bloomed, and allowed to break; when the shoots have fairly pushed, the plants may be taken out of the pots, the balls carefully reduced, and a fresh coating of soil pressed all round the balls, leaving no vacant space. Watering may be done in proportion to the growth of the plants and the quantity of roots to receive it. If catalogues gave cultural "hints" for plants as well as for vegetables, it would be of great value to amateurs, as it is often difficult to find the kind of soil adapted for various kinds of plants. Window-boxes will now require attention. Mignonette, Stocks, and Geraniums are still favourites for boxes.

M. T.



HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S, LONDON, FIRST SPRING SHOW.

ON March 13th the battle of the floral exhibitions opened for the present season. Hyacinths were the prime feature, and they were produced to an extent almost unprecedented in a London show. In addition to the usual prizes given by the Royal Horticultural Society for Hyacinths, there were also some special prizes given by the bulb-growers of Holland severally for thirty-six Hyacinths, distinct sorts, and the same number in twelve sorts, three of a sort. In each instance Messrs W. Cutbush & Son, Highgate, London, were first, and Mr W. Paul, Waltham Cross, second, with splendid collections of Hyacinths, the superb finish of the flowers, and the dwarf yet vigorous foliage of the plants shown by Messrs Cutbush & Son giving them the pre-eminence. The latter had, in thirty-six distinct sorts, the following: Baron van Tuyl, Feruk Khan, Leonidas, Garrick, Charles Dickens, Orondates, Couronne de Celle, General Havelock, Marie, Grand Lilas, Lord

Palmerston, La Nuit, and Mimosa, shades of blue ; La Jeune Anne, Emmeline, Howard, Macaulay, Gigantea, Solfaterre, Ornament de la Nature, Florence Nightingale, Von Schiller, Princess Beatrice, Lord Wellington (double), Lady Sale, and Prince of Orange, shades of red ; Paix de l'Europe, Mont Blanc, Princess Helena, Alba maxima, Queen of the Netherlands, Mirandoline, and Alba superbissima, whites ; Duc de Malakoff and Ida, yellows ; and Haydn, mauve. Mr W. Paul had Garrick, Sir John Lawrence (a fine dark sport from Charles Dickens), Grand Monarch (a fine pale blue), Couronne des Bleus, and Princess Mary of Cambridge, all three in the way of Grand Lilas ; Baron van Tuyll, Charles Dickens, Bloksberg, General Havelock, Feruk Khan, Lourens Koster, Grand Lilas, and King of the Blues, shades of blue ; Princess Clotilde, La Joyeuse, Macaulay, Koh-i-noor, Vuurbaak (a splendid deep bright-red new variety), Tubiflora, Princess Helena, Le Prophète, Garibaldi (deep red, very fine), Von Schiller, Prince Albert Victor, Gigantea, and Fabiola, shades of red ; Alba maxima, La Grandesse (a magnificent new variety), L'Innocence, Snowball, and Grandeur à Merveille, whites ; Duc de Malakoff, Ida, and Bird of Paradise, yellow ; and Haydn and Sir Henry Havelock, mauve. 3d, Mr George Davies, Old Swan, Liverpool. 4th, Mr C. Turner, Slough. Messrs Van Waveren & Sons, Hillegom, Haarlem, exhibited a fine lot in glasses that had been grown in Holland ; and Messrs Potter and Hawkins also staged collections. In the class for thirty-six Hyacinths, twelve sorts, three plants of each, Messrs W. Cutbush & Son had splendid examples of Grand Lilas, Marie, Feruk Khan, General Havelock, and Baron van Tuyll, shades of blue ; Gigantea, Macaulay, and Florence Nightingale, reds ; Snowball and Queen of the Netherlands, whites ; and Duc de Malakoff and Ida, yellow. Mr W. Paul had Garrick, Feruk Khan, Princess Mary of Cambridge, and Grand Lilas, blue ; Fabiola, Gigantea, Von Schiller, and Garibaldi, reds ; La Grandesse, Snowball, and Grandeur à Merveille, white ; and Ida, yellow. Mr W. Cutbush, Barnet, and Mr Thomas Hawkins also exhibited.

With eighteen Hyacinths, distinct, Mr W. Paul was first, with fine and even specimens of Baron van Tuyll, Garrick, Grand Monarch, Charles Dickens, Prince Albert, King of the Blues, and Grand Lilas, blue ; Charles Dickens, mauve ; Vuurbaak, Koh-i-noor, Fabiola, Von Schiller, and Ornament de la Nature, red ; La Grandesse, L'Innocence, and Seraphine, white ; Ida and Bird of Paradise, yellow. 2d, Messrs W. Cutbush & Son, with Charles Dickens, Baron van Tuyll, General Havelock, Grand Lilas, and Marie, blue ; Emmeline, Mrs Beecher Stowe, Macaulay, Florence Nightingale, Ornament de la Nature, and Gigantea, red ; Mirandoline, Alba maxima, Grandeur à Merveille, and Queen of the Netherlands, white ; Haydn, mauve ; and Ida, yellow. 3d, Mr

George Davies, Messrs Turner, Van Waveren & Sons, and W. Cutbush, also exhibited. A new class for eighteen red Hyacinths was scarcely attractive enough to lead one to wish it should again form a part of the schedule, as, light Hyacinths predominating, there was an inevitable sameness about the collection. Mr W. Paul staged a fine lot of average size, and with an equal preponderance of dark and light shades ; but unfortunately this collection was disqualified, owing to two plants of Von Schiller being staged. The dark-red flowers were Linnæus, Prince Albert Victor, Reine des Jacinthes, Annie Lisle, and Solfaterre ; of medium shades, Von Schiller, Princess Clotilde, Macaulay, Mrs Beecher Stowe, Princess Helena, and Kohinoor ; and of pale flowers, Noble par merite, Géant des Roses, Fabiola, Ornament de la Nature, Lord Wellington (double), and Cavaignac. Messrs W. Cutbush & Son were placed first with Solfaterre, Lady Sale, and Cynthia, dark red ; Macaulay, Mrs Beecher Stowe, Princess Clotilde, Milton, Duchess of Richmond, and Von Schiller, medium red ; and Le Prophète, Cavaignac, Sussanah Maria, Ornament de la Nature, Gigantea, Duke of Wellington, Prince of Orange, Florence Nightingale, and Hogarth, pale red. There was no second prize awarded, owing to the disqualification of Mr Paul.

The Hyacinths exhibited by amateur growers were very good indeed, especially those grown in the neighbourhood of Highgate. With six kinds, Mr James Weir, gardener to Mrs Hodgson, The Elms, Hampstead, was first with Charles Dickens and Raphael, blue ; Von Schiller and Duchess of Richmond, red ; and Grandeur à Merveille and Gigantea, white. 2d, Mr Potter, gardener to B. Noakes, Esq., Highgate, with General Havelock and Grand Lilas, blue ; Macaulay and Lord Wellington, red ; and Snowball and Paix de l'Europe, white. 3d, Mr George Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park. Three other exhibitors also competed with six Hyacinths grown in windows in pots. Mrs Noakes, North Hill, Highgate, was first—Prince of Orange, Princess Helena, and Duchess of Richmond, red ; Baron van Tuyll and Grand Lilas, blue ; and Grandeur à Merveille, white : 2d, Miss Wilding : 3d, Mr Janes.

But one collection of six new Hyacinths, never before exhibited, was staged, Mr W. Paul being the exhibitor. The sorts were Hector, a pale-blue flower of the build of Grand Lilas, but with more of mauve in it ; White Swan, single, very poor ; Double Diebitsch Sabalkausky, a double form of this red flower ; Dante, single, dark-blue, of the style of Mimosa, but, as shown, not so good ; Purple Queen, a very poor dark purplish-blue single kind ; and Andromache, single red, having a spike of flower similar in build to Von Schiller, but not so good in colour.

Mr W. Paul was first with six pots of *Polyanthus Narcissus*, having *Soleil d'Or*, *Queen of the Netherlands*, *Gloriosa*, *Queen of Yellows*, *Her Majesty*, and *Lord Canning*; 2d, Mr C. Turner, with *Belle Princesse*, *Medio luteo de France*, *Grande Monarque*, *Gloriosa superba*, *Bathurst*, and *Bazelenan Major*. Messrs W. Cutbush & Son were first with twelve pots of *Tulips*, in six kinds, having *Keizers Kroon*, *Proserpine broken*, the flowers flaked with white; *Vermilion Brilliant*, *Buttercup*, *Yellow Pottebakker*, *Couleur Cardinal*, *Van der Neer*, *Superintendent*, and *Rose Applaite*. 2d, Mr W. Cutbush, *Barnet*, with *Keizers Kroon*, *Proserpine*, *White Pottebakker*, *Thomas Moore*, *Vermilion Brilliant*, and *Duchesse de Parma*. Mr T. A. Steel, *Hammersmith*, was first in the amateurs' class for twelve pots of *Tulips* in four kinds, having kinds similar to the foregoing. Collections of *Crocuses* were shown by Messrs W. Paul and W. Cutbush & Son, the prizes being given in the order of the names; but the *Crocuses* were past their best, the forward season having told upon them.

Splendid pots of *Lily of the Valley* were shown by Mr W. Cutbush, *Barnet*, and fine *Primulas* and *Cyclamens* were shown by Mr Wiggins, gardener to W. Beck, Esq., *Isleworth*, the first prizes being awarded in this way.

There were also cut *Camellias*, a collection of forced *Roses* in pots from Messrs Paul & Son, and large groups of miscellaneous plants from Messrs W. Bull and B. S. Williams, to whom special prizes were awarded. Messrs Downie, Laird, & Laing had capital examples of three of the new *Golden-leaved Coleuses* they are shortly to send out—viz., *Baroness Rothschild*, *Albert Victor*, and *Princess Beatrice*, the two first named being well coloured and bright-looking. Mr H. Cannell had a group of bedding *Pelargoniums*, and Mr Thomas Ware, *Tottenham*, an extremely interesting basket of spring flowering plants. Altogether, the show was a great success; and the day being fine, the company was large.

In the evening, the representatives—nine in number—of the Dutch bulb-growing houses, who had come to England to witness the competition for the prizes they had given, were entertained at dinner at *Freemasons' Tavern* by some of the leading exhibitors and others; Mr Thomas F. Wilding, F.R.H.S., one of the judges, being in the chair, and Mr James Cutbush, *Highgate*, in the vice-chair, Messrs William Paul, R. Dean, Peter Barr, &c., being also present. The general opinion expressed by the guests was to the effect, that the *Splendour Hyacinths* exhibited on that day far transcended their most sanguine expectations, and that the response made to the competition they had invited was satisfactory in the highest degree to those who had given the special prizes.

NEW PLANTS OF THE PAST MONTH.

ORCHIDS are again in the van of new plants, not only in regard to numbers, but also in relation to excellence. *Cypripedium Harrissonianum*, awarded a first-class certificate, is a true hybrid, raised by Mr Dominy of Messrs Veitch & Sons, from a cross between *C. barbatum* and *C. villosum*. The flowers are olive-green, with a streaked pale-edged dorsal sepal, brownish-purple stained petals, and a dark-purple lip. Its habit is especially vigorous and healthy, in this respect a decided advance; the leaves are green, mottled with blotches of deeper green. Messrs Veitch & Sons also received first-class certificates for *Dendrobium lasioglossum*, with white flowers tipped with pale rose produced in pairs, the base of the lip deep orange; and for *D. crassinode*, producing pairs of white flowers tinted with rose and having a woolly lip. Three distinct varieties of *Odontoglossum triumphans* were recently shown by Mr Wilson, gardener to William Marshall, Esq., Enfield; and to two of these, named respectively var. *Marshallii* and var. *Wilsoni*, first-class certificates were awarded. They were said to be the finest forms of *O. triumphans* yet seen. The first named had yellow sepals and petals thickly blotched with patches of cinnamon-brown; the petals somewhat toothed and the lip white, with frilled yellow margin and brown lip. In the case of the last named, the sepals and petals were marked with fewer and larger patches of brown, and the lip was much less frilled. From Mr Sherratt, gardener to James Bateman, Esq., Biddulph Grange, Congleton, came cut specimens of two very beautiful and rare Orchids, to each of which first-class certificates were awarded—viz., *Bletia Sherrattiana*, with rich rosy-purple flowers, the lip deeper in colour and marked with purple; and *Ipsa speciosa*, a very rare Orchid—so rare as, perhaps, to be only in Mr Bateman's hands—and very difficult to manage, and having handsome flowers of the brightest and purest yellow.

A first-class certificate was awarded to Messrs Standish & Co. of Ascot, for a dwarf-growing form of *Todea hymenophylloides* named *compacta*. This had appeared in somewhat large numbers as self-sown seedlings in a stovehouse, and though some of the plants were some six or seven years old, they were not more than 2 or 3 inches in height.

The same award was made to Messrs J. & C. Lee, Hammersmith, for a very good variegated form of *Thuja Lobbiana*, named *variegata*, large golden blotches being regularly diffused over a large plant. It promises to form a valuable addition to the various forms of variegated Conifers.

Under the name of *Phormium Cookianum variegatum*, Mr W. Bull

has recently exhibited two plants of the striped-leaved form of *P. Colensoi*, an elegant plant with slender white-edged leaves. *P. Cookianum*, as it is termed, proved to be a rigid-growing form of *P. tenax*, with a shorter and stiffer habit, and was named *P. tenax Veitchianum*, the variegated form being further named *Veitchianum variegatum*, and was awarded a first-class certificate. These two forms had been received by Messrs Veitch & Sons from the Botanic Gardens, Hamburg, under the name of *P. Cookianum*. It is still thought by some that it is, in both forms, simply *P. tenax* in a state of immature development. *P. Cookianum*, therefore, as a species, has now no "local habitation, or a name."

A first-class certificate was awarded to Mr W. Bull for *Camellia La Maëstosa*, a variety with remarkably short rounded leaves, and bold stout-looking cupped very broad-petaled flowers, of a carmine crimson, slightly blotched with white. The same award was made to Messrs Downie, Laird, & Laing for *Coleus Baroness Rothschild*, one of the Royal Horticultural Society's last batch of seedlings. It is a fine and handsome kind, with rich-looking leaves having a bronzy-purplish-crimson surface and broad golden margin. It promises to be one of the very best of the last new group.

Some remarkably good things have lately been produced in *Primulas*. Mr B. S. Williams, Holloway, received a first-class certificate for a magnificent strain of the single red kind, the flowers very large and deeply coloured. It was not named, but was said to come true from seed. A very distinct and novel form of the single white, named *Waltham White*, came from Mr W. Paul, of Waltham Cross, and was remarkable for the decided red colour of its leaf and flower-stalks, while the flowers, of large size and handsomely fringed, were of the finest and purest white, and the habit of growth vigorous. Messrs Windebank and Kingsbury, of Southampton, sent a batch of their new single and double kinds, the former of which had suffered much by the journey. Of the latter, first-class certificates were awarded to Miss Kingsbury, having large white flowers distinctly flaked with carmine; and to *Snowflake*, having large pure white flowers, very full, the leaf-stalks tinted with red. It is a singular fact, but nevertheless true, that all flaked flowers of the *Primula Sinensis*, as well as flowers of the purest white, are always produced on plants having red, or tinted red, leaf-stalks. In addition to these *Primulas*, Messrs F. & A. Smith, Dulwich, had some double and curious single kinds; and Mr Wiggins, of Isleworth, a very fine lot of single varieties, some of them very handsome.

A first-class certificate was awarded to Messrs Paul & Son for a fine Hybrid Perpetual Rose, named *Duke of Edinburgh*, of a deep brilliant crimson colour, shaded with dark, the flowers full and finely cupped,

in build very similar to the well-known General Jacqueminot. It may be an open question whether it be wise to give so high an award to a forced Rose ; but certain it is that this flower was produced in a very high state of development.

A word of praise is due to the magnificent forms of the improved varieties of *Cyclamen Persicum*, Mr Wiggins, of Isleworth, has lately been producing at the meetings of the Royal Horticultural Society. They so far transcend all that has hitherto been seen of this charming spring flower (often very sorry objects indeed), that they are a show in themselves. Some of the bulbs, nearly four years of age, form plants fully 18 inches in diameter, bearing hundreds of beautiful flowers. From purplish rose to the purest white they range through several intermediate shades ; a house of such plants as seen at Isleworth is indeed a charming and long-to-be-remembered sight. Something, however, must be said about these in a separate paper.

New fruits are rare—very rare indeed—though Grapes are to some extent an exception to this invariable rule. At the last meeting of the Fruit Committee, Mr William Thomson, of Dalkeith, sent what promises to become a valuable Grape. It was appropriately named “Thomson’s White Lady Downes,” as it partakes of the character of this late Grape, being a seedling from it crossed with the Bowood Muscat. The bunch and berries are handsome, and the latter regular in size and of a fine amber colour. Mr Thomson, in a communication to the Committee, stated that the Vine is, if possible, more vigorous than that of Lady Downes, of the same habit, and may be grown along with that variety in a house with no more than greenhouse heat to ripen the fruit. Last year, Mr Thomson stated, he kept the Grapes in good condition on the Vine till April, but this season the unusual heat of February stimulated the sap in the Vines so early that the flavour of the fruit had in consequence been adversely affected. From this cause the Grape was quite flavourless, or almost so, but a member of the Committee stated that he had tasted it in the autumn and found it very fine. If Mr Thomson will exhibit it earlier another season, there is no doubt but that the Grape will receive a high commendation.

R. D.



NOTES ON HARDY HERBACEOUS PLANTS.

WAHLENBERGIA is a small genus of *Campanulaceæ*. Looked at from a practical point of view, it should never have been separated from *Campanula*, from which it differs in only one respect, and that not a very conspicuous feature. The openings for the escapement of the seeds in the old family of *Campanula* were, in the majority of the

species, at the base or sides of the capsule, but in a few others the openings were at the top, and three in number; and on this trifling character is the modern genus, *Wahlenbergia*, founded, for in every other essential feature—habit of growth, inflorescence, and structure of flowers—they are alike. The largest number of the species are annual or biennial, some of which are pretty enough, but now rarely used in private gardens. The perennials are very few in number, and at present rare in this country. They are natives of various countries of Europe and Western Asia, inhabiting chiefly mountain pastures. They propagate freely by division and by seeds.

Beginning with *W. hederacea*, known in most of our native floras as *Campanula hederacea*, we have a very graceful pretty plant prostrate in habit, and diminutive in all its parts, but when properly accommodated as regards soil and aspect it forms a charming and interesting object from June till the end of August. The flowers are pale-blue or bluish-purple, small individually, but produced in considerable numbers; bell-shaped, and supported on long thread-like stalks. It is best adapted for cultivation on the rockwork. Should have rather a shady moist position and rich light loam.

W. Kitaibelii, syn. *Edraianthus Kitaibelii*, and *Campanula Kitaibelii*, is from Hungary. It grows to the height of about 9 inches or 1 foot, has dark purple or violet flowers, and the plant is generally hairy. The flowers appear in July and August, and the plant is best adapted for rockwork culture, and prefers a dry, airy, moderately-exposed position.

Jasione, another small genus of *Campanulaceæ*, is distinct in structure and aspect from all other genera of the order. It is not a striking or showy family, and is introduced here chiefly on account of the close approach it makes in the structure of its flowers to the Composites, which will furnish it with a special interest to those who would trace the affinities of plants. The anthers are, as in Composites, united at the base, and form a ring or sheath around the style. The heads of flower are in the way of some of the *Scabiosæ*, and are pretty, though not conspicuously beautiful.

J. humilis is of creeping, somewhat tufted, habit, rarely exceeding 8 inches high, bearing on short stalks compact heads of blue flowers about July and August. The plant is quite hardy, but found at high elevations on the Pyrenees, and enjoying there a blanket of snow during winter; it often succumbs to the combined influence of damp and frost unprotected in our climate. A little fern, dry litter, or other similar material, is all that is necessary to keep it safe. It should be cultivated on rockwork, in light rich loam on the driest possible bottom.

J. perennis is a taller species, reaching the height of 10 or 12 inches, with stems bent at the base, but afterwards erect, bearing on long stalks compact heads of bright-blue flowers, surrounded at the base with a broad rosette of bracts. The flowers appear in June, July, and August. This is a good useful rock-plant, requiring the same treatment as the preceding. It is from the mountains of Central and Southern Europe.

Phyteuma is one of the most distinct, though not the most showy, of Campanulaceæ. It is nearly allied to *Campanula*, but always easily distinguished from it by the curved cylindrical form of the corolla in bud. Though not destitute of beauty of colour, they are not to be recommended for the higher ornamental purposes; yet all are pretty and decidedly interesting. The list, as given in some catalogues, is probably too long, several of the so-called species proving, in cultivation at least, mere varieties of certain of the best marked forms: some of these will be noticed under their respective relationships.

P. hemisphæricum, a very dwarf species from Switzerland, rarely exceeding 6 inches high, is somewhat tufted in growth, the stems terminating in dense hemispherical heads of bright-blue flowers, which appear in June and July: best adapted for cultivation on rockwork in light rich loam in a moderately dry position. This is a pretty and interesting plant.

P. humilis is, if possible, more dwarf than the preceding. The blue flowers are produced in globular heads about June and July. It is a tiny interesting plant that should have a warm sheltered place on the rockwork in the same quality of soil as advised for the preceding species. It is found on the Tyrol at great elevations.

P. orbiculare enjoys a place in the British flora, but is rather rare at home; it is found, however, plentifully enough in the mountain pastures of central and southern Europe. It varies considerably in height in nature, but in cultivation it averages 1 foot high. The stems are somewhat decumbent at the base, but erect in the upper portion, and terminating in globular heads of violet-coloured flowers, which appear in July and August. It is most suitable for rockwork, but succeeds well in the front lines of mixed borders if the soil is light, rich, and warm, and is always most at home in chalky soils.

P. Michelii has oval flower-heads, which elongate as the flowers open into cylindrical spikes of bright-blue flowers in July and August. It grows from 6 to 10 inches high, is adapted for culture on either the rockwork or in the mixed border in light rich loam, and is a pretty and distinct species found in various parts of the south of Europe on mountain pastures. *P. scorzonrifolium* and *P. angustissimum* differ little in cultivation from *P. Michelii* as regards colour of flower and

form of spikes ; the former, however, is rather a stronger plant, and has the leaves on longer footstalks.

P. nigrum, from middle and southern Europe, is erect in growth, about 8 or 10 inches high, with oblong spikes of intense dark violet-coloured flowers. Very suitable for the shady sides of rockwork in light rich soil. Flowers in May, June, and July.

P. canescens is one of the most distinct and showy in the family. The plant is somewhat hoary, in most parts being covered with rough bristly hairs. The simple stems rise to the height of $1\frac{1}{2}$ or 2 feet, and are terminated by long raceme-like spikes of lilac flowers, the spikes in luxuriant plants being often branched. This species adapts itself to a variety of positions, and is available to enrich the vegetation of open woods and other shady places. W. S.



TROPEOLUM SPECIOSUM.

IN the interest of truth and caution, I cannot allow to pass unnoticed the statement by "R. F." at page 134 of the 'Gardener' for March, to the effect that I had exaggerated the difficulty experienced in many parts of the country in cultivating this admirable climber. It would be most gratifying to find that I had been mistaken in representing *Tropeolum speciosum* as fastidious or capricious regarding climate and soil, which have a much wider significance than locality merely ; but unfortunately the mere opinion of "R. F.," founded only as it is on the narrow experience of even ten years in one locality, is not sufficient to afford me that gratification. His opinion, if it proves anything, proves only that he has been successful, which is something he may congratulate himself on ; but nothing to the point at issue. I have seen too many failures in the south, and too few in the north, to doubt but that climate has something to do with it, and that it is all in favour of the north. There is nothing peculiar in "R. F.'s" treatment except the old pea-stick element, which smells of fungi—everything, in fact, but success ; and it may be fairly presumed that his success would have been none the less had he dispensed with that singular bottoming. That, however, is his own matter ; and I have no wish to interfere with or call it in question, in so far as he practises it ; but I feel bound to warn all who contemplate planting, that there is danger in using pea-sticks, or anything like them, for such a purpose. For the rest, "R. F.'s" advice is sound enough, except in the matter of depth : 3 or 4 inches in light soils is too little—twice that depth is safer ; and there is no fear of the plants not coming up, and with greater strength, too, than if planted shallower. W. S.

THE CYCLAMEN.

It has been to me a matter of astonishment that this by far the most beautiful of winter flowering-plants should not be more generally cultivated. I have grown it successfully for some years with less trouble and more satisfaction than any other flower I have ever attempted, although I have had some experience in most of the plants ordinarily shown at exhibitions. Few have any idea of the beauty of the Cyclamen if judged by those miserable specimens ordinarily seen in Covent Garden, or but too frequently met with in the houses of nurserymen.

I will enumerate what I consider its valuable qualities, which all who will follow the instructions about to be given cannot fail to admit, whatever their opinion of the plant might hitherto have been. The property of the Cyclamen consists in its being one of the most easily grown of any of our winter favourites. It has a compact habit, lovely foliage, exquisite fragrance in some of its varieties, long continuance of bloom, and to these must be added its greatest recommendation—viz., being of all flowering-plants the best adapted to indoor decoration. I have frequently had it in my sitting-room; and with most ordinary care it will flourish as well, or almost as well, as in a conservatory. The only attention it demands is to have its leaves brushed over every morning with a soft camel's-hair brush, dipped in a little lukewarm water. I consider that unless we are enabled to sponge the leaves of a plant, except some few Ferns, it is rarely suitable as an indoor one; but the Cyclamen is well adapted to this daily ablution, and is the only means of keeping it in health when confined in the dry atmosphere of a room constantly occupied. The only objection I have ever heard against the Cyclamen is, that we have not enough variety in colour; but I hope even this solitary drawback will be eventually in some measure removed.

I consider that the Cyclamen at fifteen months' growth ought to be at least 1 foot in diameter, having a dense mass of thick variegated leaves standing almost erect, and the flowers not more than 2 or 3 inches above the foliage. The flowers themselves should be broad in the petals, about 2 inches in length, nearly round at the ends, and having a slight regular twist in each segment of the corolla.

I will give a description of how I proceed from the commencement, as I generally prefer raising my own plants from seed. It evidently most readily degenerates, as is the case with most of the Primulaceæ, and therefore some judgment is necessary in hybridising these, but which is easy, and in the majority of cases satisfactory, if the result is noted; and those not having the essential points above described are at once discarded, and not kept to contaminate others. The best time

to hybridise the Cyclamen is as early in March as possible, but it may be done as late as April, although I consider the later it is done after the first week in March, the less chance you have of obtaining the wished-for result, as all flowering-plants are more or less hybridised by insects and other sources in the spring and summer months. When the sun shines is the best time to cross your Cyclamen, and it should be done in the following manner: Having selected a plant as male, with good-shaped flowers, take hold of the stalk between the left finger and thumb, just below the flower, and with the right thumb flip the side of bloom, and you will find the pollen lodged on the left thumb nail. Then apply this pollen to the blooms of a plant that has good habit and stiff variegated foliage, which should in all cases be indispensable in the female. In performing this some care is required, as the female organs are extremely delicate, and will not admit of any rough usage. The pollen should be gently applied to the stigma, and it will be found that at least a small portion has adhered, which is all that is required. I do not think it advisable to cross *Persicum* with a *P. rubrum*, or with any other colour, except for variety; but endeavour to keep them distinct, and improve each kind separately. However, if you have a *rubrum*, for instance, with a bloom of good shape and colour, but nothing else to recommend it, make this the male, and cross it with another *rubrum* possessing good dwarf foliage, and the result, in most instances, will be improved habit combined with a first-rate bloom. *Persicums* should be crossed in the same way, but endeavour, if possible, always to have these scented. If you wish *P. delicatum*, you have only to cross a *Persicum* with *P. album*, and *Persicum* with *P. roseum*, to produce another distinct variety. Not more than six flowers, on even a large plant, should be allowed to seed; for if a greater number be retained the seed will be small, and the plants obtained from it, in all probability, be wanting in that vigour which is at all times an important item in the raising of seedlings. After fertilising the six best blooms, all others should be at once removed, and the plants put in a rather shady part of the greenhouse, but still having as much light as possible; and no place can better suit them than a shelf protected from hot sun by wood-work, about 1 foot or 18 inches from the glass. The seeds are ripe in about ten weeks, are sown at once, and put in an old Cucumber or Melon frame, with a temperature of about 65° or thereabouts. In six weeks the first leaf will be seen pushing itself through the soil; and when these are an inch in length they may be transplanted into a pan, still retained in the pit, and carefully shaded from hot sun *with thin canvass*, as a glaring sun I consider at all times highly detrimental to them, but especially so when the plants are young.

Towards the end of September I select a few of the strongest plants and put them in small pots, still retaining all in the frames close to the glass until the end of October, or even much later, according to the mildness of the season, as I find the young plants do better kept close in an old Melon frame, where a little heat still remains in the fermenting material. As soon as frost or cold weather sets in, all the Cyclamens are placed on a shelf in the conservatory where the thermometer is not allowed to fall below 45°. Through the winter they do not grow much, but if the above temperature is maintained, they will be found to have increased a little, which is all that is desirable. Those plants potted in autumn will require a shift into a size larger pot in April; those in the pans should be potted, and either retained in the conservatory, or, what is better, put in a frame with a little bottom-heat for a month or six weeks; then about the end of May put out in a cold frame facing south-east, kept close for a few days, but eventually fully exposed during the daytime.

When the plants are in this cool frame they should never be too much crowded, but allowed some few inches between the leaves, so that air may freely circulate, and prevent that drawn appearance which must at all times be carefully guarded against. The system I am advocating, it will readily be seen, is never to allow a Cyclamen entire rest, but always keep them growing, however slowly, and not, as is the custom with all growers I know, to let them partially die during the summer months; and this, I believe, is the entire cause of that neglect which the Cyclamen has latterly most undeservedly shared with some other good old favourites.

In the management of old plants, if retained, I should adopt much the same system as with the young ones, except that they are not in spring introduced to a frame with bottom-heat, but partially shaken out of their soil, *potted lightly*, not pressed too hard, then placed in a cool frame and kept close for a fortnight or three weeks.

If the weather is hot during the months of June, July, August, and September, invariably sprinkle water over-head once in the forenoon besides the usual watering on soil; but it must be done with a watering-pot having a very fine rose, otherwise the foliage will be bent down by the weight of water, and eventually the leaves will not be erect and compact, which they ought to be. Another caution I must also give in reference to watering over the foliage, and that is, never to close up the lights for the night until the plants are quite dry, otherwise you will have them lanky, which, as I said before, must of all things be avoided. My plants are generally taken into the conservatory in full bloom early in October, when they continue to throw up flowers until the end of April, if not wished to seed from.

About Christmas a little liquid manure is weekly applied with undoubted advantage, and the bloom will be much prolonged by this timely stimulus; and should you wish the *Cyclamen* to flower for some months, it is of the greatest importance that all blossoms should be removed as soon as the tips of the reflexed limbs become tinted with brown. As soon, then, as the ends of petals become discoloured, they should be pulled out by giving a sharp snatch to the bloom, so as to detach it close to the corm; for if not entirely removed, the remaining portion decays, and the decomposition spreads over the whole leaf as well as flower-stalks, and the plant will not be completely recovered that season, even if detected in its earlier stages. I mention this because occasionally, with extreme vigilance, it will occur in the most unsuspected way, and I would advise some of the blooms and leaves to be removed, and the centre dusted over with sulphur, as the only means of saving the plant, which is sometimes of consequence if a well-known good variety.

The soil best suited, in all stages of the *Cyclamen*, is one composed of two-fifths coarse leaf-mould, the same quantity of very light soft yellow loam, one-fifth dry cow-dung, and sufficient fine white sand to prevent running together. The dry cow-dung should be collected in fine weather, and it would be advisable, after rubbing small, to pour some nearly boiling water over it to kill all seeds, which are very troublesome if not destroyed in this way. The leaf-mould should also be well wetted, mixed with cow-dung and sand; the loam should be ground down quite fine in a dry state, mixed with other ingredients, and you will then have the very best compost it is possible to make to grow the *Cyclamen* in.

The corm is always seen above the soil, but this should never be so, for the simple reason that the roots in this case will only arise from the lowest portion of it, whereas if buried they will do so from all parts alike; and this must be a very great advantage to so gross a feeder as this plant really is. When the plants are put into their blooming-pots I always place a handful of crocks in bottom, and on the top of them some small pieces of dry cow-dung, which is without doubt one of the secrets of success in the cultivation of this gem of the winter season.

H. E. I. C. S.



FLORIST FLOWERS.

THE following remarks, taken during the blooming season of 1868, may be interesting as well as useful to those who take an interest in the cultivation of florist flowers. Those enumerated in Section I.

may be considered as first-class, and those of Section II., although only of second-rate merit in general, and not altogether to be depended upon for exhibition purposes, are still useful, and first-class flowers may occasionally be obtained from them :—

PANSIES (selfs).

Section I.—Alexander M'Nab, Arab, Cherub, Dr Robert Lee, Dux, Golden Prince, George Keith, L. F. Fleming, Masterpiece, Miss Ramsay, Miss Muir, Snowdrop.

Section II.—Alexander Tait, Constance, Councillor Milligan, David Syme, Excelsior, Golden Lion, Highland Mary, Yellow Queen.

YELLOW GROUNDS.

Section I.—Alexander Whamond, Allan Ramsay, Andrew Smith, Czar, Clipper, Gem, George Wilson, Iris, J. B. Downie, Norma, Oriel.

Section II.—Comus, Defoe, Emily Lyle, Fire-Eater, Hugh Campbell, John Inglis, Mrs Downie, Prince of Wales, William Wilson.

WHITE GROUNDS.

Section I.—Clara, Francis Lightbody, Lady Lucy Dundas, Lavinia, Mary Lamb, Maggie Grieve, Princess of Wales, Queen, Village Maid.

Section II.—Cupid, Elvina, Jessie Laird, Miss M. Carnegie, Mrs Hopkins, Waverley.

FANCY PANSIES.

Section I.—Amy, Black Prince, Daisy, Dewdrop, Dragon, Earl of Rosslyn, Fairy Queen, Hugh W. Adair, Keekum, Kettledrum, Miss Melville, Mrs R. Dean, Mrs T. Scott, Mrs H. Northcote, Noemi-Demay, Ninian Niven, Princess Mathilda, Rev. James Robertson, Sunrise, Sweet Lucy, Tambourine, Teutonia.

Section II.—Caffra, Dogstar, Figaro, Indigo, Lady Montgomery, Medora, Orange Boven, Oriana, Punch, Princess Alice, Striped Queen.

HOLLYHOCKS.

Section I.—Charles Eyre, Consul Beda, Countess of Craven, Cygnet, Earl of Breadalbane, Fred Chater, George Paul, Gem of Yellcws, Hercules, Her Majesty, Hugh Smith, J. W. Martin, Joshua Clarke, James Anderson, John Tweedie, Lady W. W. Wynn, Lord Clifden, Lord Rokeby, Mrs P. Bruce, Mrs Downie, Mrs Hastie, Mrs B. Todd, Magnet, Purple Emperor, Princess Christian, Queen Victoria, R. G. Ross, Sir Robert Hay, The Prince, William Anderson, William Thomson, William Craven, William Thom, William Marshall.

Section II.—Beauty of Mitford, Decision, Empress of India, George Keith, Glory, Invincible, Jaune d'Or, John Cowan, James Duff, Lady Middleton, Lady Rokeby, Lady des Veaux, Lilac Queen, Mrs W. Sharpe, Mrs Elliot, Mrs F. Mackenzie, Mrs Tod, Ne plus ultra, Orange Boven, Purple Prince, Robert Patterson, Rosy Gem, Royal Scarlet, Seraph, Tournament, William Young.

DAHLIAS.

Section I.—Anne Keynes, Adonis, Bullion, Beacon, Butterfly, Constance, Caroline Tetterell, Flambeau, Guardsman, High Sheriff, James Backhouse, John Kesby, Lady Derby, Leats, Lord Derby, Memorandum, Mrs Boston, Mrs Dodds, Mrs Darling, Miss Henshaw, Paradise Williams, Princess of Wales, Sir G. Smythe, Samuel Naylor, Valentine, Vice-President, Vidette, Yellow Boy.

Section II.—Alexandra, Albion, Clara Simons, Freemason, Flossy Gill, Fanny

Purchase, Favourite, Golden Drop, Golden Gem, Harriet Tetterell, Hebe, Homer, John Dimnington, Mrs Thornhill, Mephistopheles, Princess Alice, Scarlet Gem, Tiffany.

FANCY DAHLIAS.

Section I.—Attraction, Billy Button, Chameleon, Ebor, Fanny Sturt, Gem (Pope), Gem (Stafford), Jeanie Deans, Leopardess, Miss Ruth, Mrs Joy, Mdle. Nilsson, 'Master Tommy, President, Lincoln, Prospero, Queen Mab, Regalia, Regularity, Striped Perfection.

Section II.—Angelina, Butterfly, Bessie Wyatt, Favourite, Frank Tiffin, John Burn, Octoroon, Peeress, Prince of Wales, Queen of Sports, Reliance, Startler, Topsawyer.

PHLOXES (early flowering).

Section I.—Alexander Shearer, Alexandra, Cygnet, Duchess of Hamilton, Duchess of Sutherland, George Wyness, George Goodall, Her Majesty, John Cumming, Lady L. Dundas, Miss C. Duncan, Miss Ure, Mrs Shanks, Mrs Austin, Mrs Duff, Mrs Laing, Princess Alexandra, Princess of Wales, The Deacon, William M'Aulay, William Shand.

Section II.—Adam Thomson, Dr Bremner, Gem, James Laing, John Baillie, Lady E. Balfour, Lady Sinclair, Mrs K. Howat, Purple Prince, Rosy Gem, W. W. Platt.

PHLOXES (late flowering).

Section I.—Adelina Patti, Ange Gardien, Amabilis, Aurantiaca Superba, Gloire de Neuilly, Géant des Batailles, L'avenir, Liervalli, Mdle. C. Nilsson, Mme. Domage, Mme. La Comtesse de Malart, Mme. Froment, Mme. Maria Saison, Mons. Veitch, Mons. Hugh Low, Mons. Linden, Mons. George Henderson, Queen Victoria, Reve d'Or, Sultan, Vierge Marie, Arthur Fontaine, Comte de Lambertye, Duke of Sutherland, Eclair, Edith, George Ville, John Laing, Mme. de Caen, Mme. Andry, Mme. Bonneau, Major Stewart, Miss Melville, John Downie, Mrs Campbell, R. B. Laird, William Blackwood.

Section II.—Comtesse de Chambord, Comtesse de la Panouse, Mons. Malet, Mons. W. Bull, Aurore Boreale, Figaro, Premices du Bonheur, La Candeur, Roi de Roses, Admiration, Comte de Merona, Edouard Andry, Flore, Foudroyant, Larina, Mme. Thibaut, Mme. Godefroy, Mme. Delamare, Mme. de Wendel, Mons. Allain, Mme. Rindatler, Mons. Alphonse Dufoy, Neatness, Professor Koch.

(To be continued).

[This list is by one of our ablest florists, and may be taken as a safe guide.—Ed.]



ON THE PROPAGATION OF THE LEBANON CEDAR.

SIR,—Pray permit me to direct the attention of all those who are interested in arboriculture to the splendid crop of cones which these trees are now bearing. All Cedars do not bear fruitful ones, but many contain excellent and numerous seeds. The cone of the Cedar is remarkably tough, and will not discharge its seeds by exposure to heat like those of other Firs. I have tried various methods of extracting the seeds, and find the following the most effectual:—Fix the cone in a vice and saw off about $\frac{3}{4}$ in. top and bottom, then with a mallet and cold chisel divide the cone into quarters, which must be separated into smaller portions. Place these in the kitchen-screen for say twenty-four hours, and they can then

be separated without much difficulty. If very tough, use a pair of wire-nippers to open them. A good cone contains from forty to sixty seeds. It is remarkable that, though the Cedar is so prolific this year, the *Pinus Austriaca* has no cones; but it bore so heavily the two previous years that I have not only young trees of this species growing from trees of my own planting, but have sent considerable quantities of seed to friends and some nurserymen.—HIGFORD BURR (Aldermaston, Feb. 25).

[We are indebted to the courtesy of Mr Richards, assistant secretary of the R. H. S. of London, for this paragraph.—ED.]



LIVERPOOL SPRING FLOWER-SHOW.

THE annual exhibition of Hyacinths, Tulips, and other flowers, generally identified with the inauguration of spring, took place in St George's Hall, and was visited throughout the afternoon and evening by a very numerous assemblage of persons of all ranks and stations in life. In its entirety, the show was fully equal to any previous spring exhibition, and in some classes the flowers were of a very high order of merit, and decidedly superior to anything previously seen in this town. The arrangements were admirably made by a committee under the leadership of Mr Tyerman, curator of the Botanic Gardens, and assisted by Mr R. W. Ker, the secretary, to whose indefatigable labours the success of this and previous exhibitions is mainly attributable. Upon wide platforms, stretching nearly the entire length of the centre of the hall, were arranged the Hyacinths, Tulips, Primulas, and other plants of similar order, whose brilliant blossoms in colour rivalled the tints of the rainbow, and emitted a fragrant perfume which pervaded the spacious hall. On the steps leading to the crown court were arranged many choice specimens of stove and greenhouse plants, the sides of the hall being devoted to the more pretentious Azaleas, Rhododendrons, Ferns, &c.

As might be expected, the Hyacinths were the chief objects of notice, and they richly merited all the commendation passed upon them, for a more compact or beautiful collection of this splendid flower has seldom been seen out of London. In former years, Mr Cutbush, the celebrated Hyacinth grower, contributed largely to the show, and generally managed to carry off the principal prizes for nurserymen, to the mortification of local florists; this year, however, the metropolitan shows prevented his attendance, and all the flowers shown yesterday were consequently of local production. Messrs T. Davies & Co., of Wavertree, and Mr G. Davies, of Old Swan, took the highest honours for nurserymen's flowers; but in size and quality they were surpassed by the splendid plants shown by Mr Mander-son, gardener to Mr B. H. Jones, banker, of Larkhill, who carried off prizes for collections of 24, 18, 12, and 6 pots. The Tulips, Primulas, Narcissus, and Camellias, were well grown, but the Lilies of the Valley, tree Mignonette, and hand bouquets, were scarcely equal to those seen at former shows. One of the most attractive features of the exhibition was a collection of *Cyclamen Persicum*, shown by Mr R. W. Ker, the secretary, crowned with enormous clusters of most delicately tinted flowers, and showing to what perfection of culture this favourite winter plant can be brought. Mr Ker also exhibited a very choice collection of Hybrid Solanums, which found plenty of admirers.

The stove and greenhouse plants included some beautiful specimens of *Prunus*

flore-pleno, literally covered with snow-white blossoms; Rhododendrons and wonderfully-grown Azaleas, together with other varieties, each charming in itself, and all contributing to the general brilliance of the collection. Special mention, however, deserves to be made of the collection of Ferns, which included some unnamed seedlings sent by Mr Ledger, gardener to Mr Wm. Rathbone, M.P., and which were afterwards classified by Mr Tyerman; also of a small but very choice collection of Orchids covered with their beautifully marked though singularly shaped blossoms. Mr Isaac Davies, nurseryman, of Ormskirk, exhibited a new Azalea, *Hybrida odorata*, to which a first-class certificate was awarded by the Royal Horticultural Society of London in April 1868. This Azalea is the purest white of that description of flower yet submitted to the public, and in addition to its fragrance it has the quality of growing in enormous clusters. The specimen exhibited, though small, was spoken of in the highest terms of commendation by the judges, and it will certainly become a great favourite with Azalea growers. The most novel plants in the exhibition were a collection of Geraniums shown by Mr Mason, in charge of Prince's Park, which had been budded upon the stocks of seedling Geraniums in precisely the same manner as Standard Roses are usually budded. By this means several kinds can be grown upon one stem, and those of dwarf habit, such as Mrs Pollock and many of the other variegated descriptions, could be trained into the form of Pyramids or Standards, and become very great attractions in the conservatory or garden. The plants look healthy and strong, and the novel system of treatment appeared thoroughly to agree with them. There is no doubt the experiment will undergo thorough investigation, and the public will in process of time derive the benefit of the inquiry. We cannot go farther into detail, but must content ourselves by remarking that Cinerarias, Pot and Standard Roses, Amaryllis, and many other kinds of flowers, together with a small collection of fruit grown at Kele Hall, Staffordshire, made up the remainder of the exhibition. The judges were—Hyacinths, Mr Downie, Edinburgh, and Mr Shaw, Manchester; Plants, &c., Mr Baines, Bowden, and Mr Findlay, Manchester; and the following were their awards:—

AMATEURS.

Twenty-four Hyacinths—1. B. H. Jones, Esq. (gardener, Mr Manderson); 2. F. C. Braun, Esq. (gardener, Mr Dunbar); 3. J. E. Reynolds, Esq. (gardener, Mr Wilson).

Eighteen Hyacinths—1. B. H. Jones; 2. J. R. Jeffery, Esq. (gardener, Mr Greenhough); 3. F. C. Braun; extra, J. E. Reynolds.

Twelve Hyacinths—1. B. H. Jones; 2. J. E. Reynolds; 3. F. C. Braun; 4. F. W. Medley, Esq. (gardener, Mr Jones).

Six Hyacinths—1. John Bateson, Esq. (gardener, Mr Kneale); 2. B. H. Jones; 3. R. D. Holt, Esq. (gardener, Mr Moreton).

Two Double Hyacinths—1. J. Bateson; 2. B. H. Jones; 3. J. E. Reynolds.

Two Single Hyacinths—1. C. W.

Neumann, Esq. (gardener, Mr Higham); 2. B. H. Jones; 3. Major Walter (gardener, Mr Mapham).

Six Pots Polyanthus Narcissus—1. F. C. Braun; 2. B. H. Jones.

Ten Pots Double Tulips—B. H. Jones and F. C. Braun equal.

Six Pots Double Tulips—1. D. James, Esq. (gardener, Mr Norrie); 2. J. E. Reynolds; 3. F. C. Braun; extra, B. H. Jones.

Eighteen Pots Single Tulips—1. F. C. Braun; 2. B. H. Jones; 3. J. E. Reynolds.

Twelve Pots Single Tulips—1. D. James; 2. B. H. Jones; 3. F. C. Braun.

Six Pots Single Tulips—1. R. D. Holt; 2. F. C. Braun; 3. B. H. Jones; extra, J. E. Reynolds.

Amaryllis—1. C. W. Neumann ; 2. J. Campbell, Esq. (gardener, Mr Everett); 3. Lieutenant-Colonel Clay (gardener, Mr Porteous).

Six Azaleas—1. D. James ; 2. E. Bates, Esq. (gardener, Mr Turner).

Three Azaleas—1. C. W. Neumann ; 2. J. C. Reynolds ; 3. E. Bates ; extra, D. James.

Azalea — 1. B. H. Jones ; 2. D. James ; 3. Mrs Zwilchenbart (gardener, Mr Sorley).

Three Azaleas (pots not exceeding 8 inches)—1. D. James ; 2. E. Bates ; 3. Mrs Bird (gardener, Mr Fleetwood).

Four Rhododendrons — 1. J. E. Reynolds ; 2. D. James.

Scarlet Rhododendron — 1. F. C. Braun ; 2. R. S. Bolton, Esq. (gardener, Mr Thomson) ; 3. B. H. Jones.

White Rhododendron—1. E. Bates ; 2. J. E. Reynolds ; 3. B. H. Jones.

Epacris—1. J. R. Jeffrey ; 2. D. James ; 3. J. Campbell.

Six dwarf Roses—F. C. Braun.

Three dwarf Roses—1. B. H. Jones ; 2. J. E. Reynolds.

Dwarf Roses—1. C. W. Neumann ; 2. B. H. Jones ; 3. J. E. Reynolds.

Six standard Roses—1. B. H. Jones ; 2. J. E. Reynolds.

Four stove or greenhouse plants—1. B. H. Jones ; 2. D. James.

Two stove or greenhouse plants—1. B. H. Jones ; 2. D. James ; 3. Mrs Bird.

Greenhouse plant—1. D. James ; 2. B. H. Jones ; 3. F. C. Braun.

Stove plant—1. B. H. Jones ; 2. J. E. Reynolds ; 3. D. James.

Orchid—1. F. W. Medley ; 2. C. W. Neumann ; 3. D. James ; extra, C. W. Neumann.

Four ornamental foliage plants—1. D. James ; 2. Colonel Clay.

Four Ferns—1. W. Rathbone, Esq., M.P. (gardener, Mr Ledger) ; 2. D. James ; 3. J. E. Reynolds.

Fern—1. D. James ; 2. J. E. Reynolds ; 3. W. Rathbone, M.P.

Three Pots Mignonette—1. F. W. Medley ; 2. P. S. Boulton, Esq. (gardener, Mr Lamb).

Three Standard Mignonette—1. P. S. Boulton ; 2. J. E. Reynolds ; 3. S. S. Parker, Esq. (gardener, Mr Lowndes).

Standard Mignonette—1. J. E. Reynolds ; 2. P. S. Boulton.

Six Cinerarias—1. L. R. Bailey, Esq. (gardener, Mr Brown) ; 2. R. D. Holt.

Six Fringed Primulas—1. R. D. Holt ; 2. Mrs Zwilchenbart ; 3. Mrs Bird.

Four Double Primulas—Mrs Zwilchenbart.

Three Pans Lily of the Valley—1. B. H. Jones ; 2. J. E. Reynolds.

Six forced 'Hardy Plants'—1. E. Bates ; 2. J. Bateson.

Forced Hardy Plant—1. F. C. Braun ; 2. J. Bateson ; 3. E. Bates.

Six Pots Hardy Plants in flower—Extra, E. Bates.

Three Cyclamens—R. Duke, Esq. (gardener, Mr Wade).

Six Pots Polyanthus—1. S. S. Parker ; 2. R. L. Bolton.

Bouquet for the Hand—1. Mr Eaves, Green Lane ; 2. C. W. Neumann ; 3. Major Walter.

Twelve cut Camellias—1. Major Walter ; 2. J. E. Reynolds.

First-class Certificate—Solanums: R. P. Ker, Basnett Street. Cyclamen, do.

Extra Prize—Budded Pelargoniums: Mr Mason, Prince's Park.

NURSERYMEN.

Twenty-four Hyacinths—1. Thomas Davies and Co., Wavertree ; 2. G. Davies, Green-lane.

Twelve Hyacinths — 1. Thomas Davies and Co. ; 2. G. Davies.

Twelve Pots Double Tulips — G. Davies.

Twelve Pots single Tulips — 1. G. Davies ; 2. Thomas Davies, Wavertree.

Six Rhododendrons—1. R. Ashcroft, West Derby ; 2. G. Davies, Old Swan.

Bouquet for the Hand—1. Mr Delamere, St John's Market ; 2. Mr Ashcroft, West Derby.

EXTRAS.

Brace of Cucumbers—Mr Smith, gardener to H. Littledale, Esq.

Collection of Fruit—Mr Hill, gardener to R. Sneyd, Esq.

Four Orchids—T. W. Medley, Esq.

First-class Certificate—Azalea (*Hybrida odorata*): Isaac Davies, Ormskirk.

Second-class Certificate—Azalea (*multiflora*): Thomas Davies and Co. Wavertree.

Notwithstanding a strong easterly wind which prevailed throughout the day, the hall was literally crammed from the opening of the doors at two o'clock until the exhibition closed. The afternoon attendance surpassed that of any previous spring show, and the evening was even still greater, for locomotion was scarcely possible, and hundreds retired to the galleries to listen to Streather's band, which during the exhibition performed a selection of operatic and other music. In every respect this spring show was one of the most successful yet held.



ROYAL HORTICULTURAL SOCIETY.

THE following prizes are offered for competition at the next meeting of the Fruit and Floral Committee of the Royal Horticultural Society, on Tuesday, April 6th, viz. :—

1. White-spined Cucumber, 1 brace, of 1 sort only. *Open.* £1.—10s.
2. Black-spined Cucumber, 1 brace, of 1 sort only. *Open.* £1.—10s.
3. Smooth Cucumber, 1 brace, of 1 sort only. *Open.* £1.—10s.
4. 6 Cucumbers, not confined to one sort. *Open.* £2.—£1.

A new list of the Fellows, Associates, Honorary and Corresponding Members, and Botanical, Horticultural, and Floral Societies, in union, &c., of the Royal Horticultural Society, has just been published, and may be obtained on application at the offices, price 1s., or by letter addressed to the secretary, Royal Horticultural Society, South Kensington, W., accompanied by fourteen postage stamps.



Notices to Correspondents.

[We regret that we must again apologise for postponing many valuable communications.—ED.]

W. M. SYGLISTHORNE.—Our correspondent has our thanks for his good advice; at the same time, we think that in the "Hints to Amateurs" we meet many of the requirements of the class of gardeners he refers to, and in our papers on Flower-Gardening last year, and those on the Kitchen-Garden in this, we meet many more of them. Success in horticulture, as in all other matters, depends so much on attention, industry, and perseverance, that we fear no directions, however simple and plain, would make a man who lacked these qualities a successful cultivator of either flowers, fruit, or vegetables.

It will be our endeavour in the future, as in the past, to make this magazine a safe guide for tyros in horticulture; but we do not write for them alone, and we must not fill our pages with that which is purely elementary.

Z.—For the colours you name there are no better plants than those in your list. For blue, use *Lobelia speciosa*. Sow the seed at once in heat, and bring it

on in heat for a time, pricking it out in pans or boxes as it progresses till May when it should be hardened in a cold frame, and planted in the border about the 20th of May. See that you get the true *Lobelia speciosa*, as *Gracilis* is sometimes sold for it, and it is worthless. Cut back the Briar to the lateral; the bud is on as soon as you see that the latter has got hold; and dust it well with powdered hellebore when the wood is damp: this will prevent the attack of the caterpillar you refer to.

J. W. P. D.—Many amateurs, like yourself, have been disappointed most grievously by the pecuniary results of their fruit-growing. To make money by such a pursuit, requires great skill in the management of such houses as you have, and at this moment there are far too many before you in the market; and when salesmen have a glut of such perishable produce, great sacrifices have to be made, and we expect amateurs get their full share of them. In these circumstances, we advise you to expect little more than to cover the cost of your coal, and you will not be disappointed. The prices in the periodicals that report the markets are the retail ones—a very different figure, as a matter of course, compared with your experience of Covent Garden prices.

A. W., CASTLE N.—We have known wooden stakes, such as you refer to, spawn the soil round them with fungi, which would be quite likely to attack the roots of Pear or Apple trees. We have also seen tallies made of white wood infest the soil of the pots they were in, in the same way, and injure the plants; and sawdust is sure to give rise to it. We would never put sawdust on the ground to keep Strawberries clean—spent hops, straw, or short grass, are better and safer every way: we prefer wheat-straw to anything for the purpose.

A SUBSCRIBER.—We regret that your letter fell aside, and a reply was omitted last month. Furze will grow on your banks. We advise you to sow the seed where you wish it to grow, and at once. The following grasses will suit your light poor soil: Crested Dogstail, Round Cocksfoot, Hard Fescue, Meadow Fescue, Evergreen Ryegrass, Evergreen Meadow-grass; Yellow Trefoil, Perennial White Clover, and Alsike Clover may be added.

A SUBSCRIBER.—The best method of packing Grapes for exhibition is that generally practised by those who show at the great London and provincial exhibitions—*i.e.*, they are fixed on a board on which a lining of clean, generally white, paper has been pasted, by having a tape passed through the bunch over its leading stem and through holes to the back of the board, where it is tied sufficiently firm to keep the bunch from moving. Then this board, with the bunch or bunches so fixed on it, is placed in a box, and fixed there at an angle of 40°, so that the bunch is in a natural position; but you must be in a very outlandish part of the country if you have not seen Grapes packed as we have attempted to describe. Peaches may have fine tissue-paper put round them, and be packed in wadding—each Peach fitting into a compartment made in a light tin or wooden box to fit it with the wadding round it; or they may be packed in boxes without compartments for each fruit if they have wadding between them. If you visit Covent Garden in the Peach season, you will see them very neatly and safely packed in punnets, with pink paper round them.

W. P.—Buy the Vine at once, and grow it till the wood gets sufficiently mature to admit of its being inarched. We struck a Vine of the variety you name this time twelve months, and in July inarched it on the old wood of a Vine on which the fruit was ripe at the time, and at this date we have eleven

bunches of fruit set, and ready for thinning. We put the inarch on about a yard from the ground, and cut back the old Vine to within 2 feet of the point of union with the new in August, and in December we pruned it close off at the junction. Never think of removing a good free-growing Vine to plant a different variety ; inarch, by all means. The sort you name has never yet been exhibited so as to do its merits justice.

J. W.—Vegetables north and south. This subject is in very able hands, and we think you had better leave it there. If you differ with us, send your lines to the 'Chronicle,' where the controversy began. No doubt good comes of such discussions when carried on in a friendly spirit.



THE GARDENER.

MAY 1869.



THE ROSE.

CHAPTER X.—GARDEN ROSES.

(Continued from page 152.)



SOON after the publication of my last chapter, I received from a furio-comic amateur the following epistle:—

SIR,—I wish to be informed what the Two in Whist you mean by leaving me on the 1st of April, *ult.*, in a ridiculous costume and a crowded ante-room, quietly proposing to keep me there for a month. My legs, sir, cannot be included among “varieties suitable for exhibition.” They have, on the contrary, been described too truly by a sarcastic street-boy as “bad uns to stop a pig in a gate,” and you might at least have clothed them in the black velvet trousers recently and reasonably introduced. Moreover, I hate anterooms. They remind me of disagreeable epochs—of waiting in custom-houses for luggage, which was not, perhaps, quite what moral luggage should be; of dreary dining-rooms belonging to dentists, where, surveying with nervous rapidity the photographic album, and wondering over the portrait of Mrs Dentist how that pretty face could have wed with forceps, lancet, and file, I have heard kicks and groans from the “drawing-room above,” “oh-ohs” from the chair which I was about to fill. They recall to memory rooms scholastic, in which I listened for the approach of lictor and fasces, and from which, though mounted and with my back turned to the enemy, I had no power to flee. They bring to recollection rooms collegiate, sombre, walled with books, where with other rebels I have waited to see that proctor, who hardly knew in the meek, respectful, gown-clad undergraduate of the morn the hilarious Jehu he met yester-eve in a tandem and a scarlet coat. Again, sir, I repeat that I hate anterooms, I hate waiting, I hate crowds, I hate black silk stockings, and I am yours irascibly,

ROSE RAMPANT.

I hasten at once, with many apologies, to the pacification and relief of my disciple; and seeing that he is much too hot and ruffled—I don’t

mean about the wrists, but inwardly—for immediate presentation, I propose to cool him a little in the fresh pure air, taking him with me to the summit of a breezy slope, which he, being of a rampant nature, will rejoice to ascend, and then showing him, when pleasantly and kindly “we’ve climbed the hill together,” *all the Roses!*

Just out of Interlachen, the tourist on his way to Lauterbrunnen is invited by his courier or his coachman to leave the main road, and, walking up the higher ground on the right, to survey from the garden of a small residence, which was used when I saw it as a pension or boarding-house, one of the most lovely views in Switzerland—the two lakes of Thun and Brienz. So would I now invite the amateur to survey and to consider the Roses in two divisions. I would describe those, in the first place, which are desirable additions to the rosarium, either as enhancing the general effect from the abundance or colour of their flowers, or as having some distinctive merit of their own, and which, not being suitable for exhibition, I would designate as Garden Roses; and I would then make a selection of the varieties which produce the most symmetrical and perfect blooms—that is to say, of Show Roses.

And I advise the amateur, beginning to form a collection, to appropriate unto himself a good proportion of those Roses from the first division, which, being of a more robust growth than many of the Show varieties, are more likely to satisfy and to enlarge his ambition. I hardly think that I should have been a rosarian had not the wise nurseryman who supplied the first Roses which I remember, sent strong and free-blooming sorts; and I have known many a young florist discouraged who attempted, without experience, the cultivation of plants which required an expert, or who had received from some inferior or shortsighted purveyor weakly and moribund trees. Wherefore, writing with the hope that I may in some degree promote and instruct that love of the Rose from which I have derived so much happiness, I exhort novice and nurseryman alike, as ever they hope to build a goodly edifice, to lay a deep and sure foundation. Let the one order robust varieties, and the other send vigorous plants.

Then, should the educated taste of the amateur lead him to prefer the perfection of individual Roses to the general effect of his rosary—should he find more pleasure in a single bloom, *teres atque rotunda*, than in a tree luxuriantly laden with flowers, whose petals are less gracefully disposed—if, like young Norval, he has heard of battles, and longs to win his spurs—then must these latter lusty, trusty, valiant pioneers make way for the vanguard of his fighting troops. Let him not disband them hastily. If, surveying the Roses of these two divisions, and having grown them all, I were asked whether I should prefer a

Rose-garden laid out and planted for its general beauty—for its inclusiveness of all varieties of special interest—or a collection brought together and disposed solely for the production of prize flowers—whether I would live by Brienzen or by Thun—I hardly know what would be my answer. Let the amateur begin with a selection from both, and then let him make his choice. A choice, if he is worthy of that name, he will have to make, as increase of appetite grows with that it feeds on, and demands new ground to be broken up for its sustenance. It is hardly possible, for the reasons which I have given at page 53, to grow the two conjointly: and to grow them separately—that is, to have both a beautiful Rose-garden and a garden of beautiful Roses—requires the *κηπία πλουτου*, the

Magnos Senecæ prædivitis hortos,

the ground and the gold, which few can spare. They who can—who have both the desire and the means, the enthusiasm and the exchequer—should have some such a Rosary as I have suggested in the chapter on Arrangement, together with a large budding-ground annually devoted, fresh Briers or Manetti on fresh soil, to the production of Show Roses. As a rule, the amateur who becomes a keen exhibitor will eliminate the varieties which he cannot show; and the amateur who studies *tout ensemble*—the completeness of the scene, diversity, abundance—will rest satisfied with his exhibition at home, thankfully admiring those garden Roses which I now propose to discuss.

We must grow, of course, the blushing, fresh, fragrant Provence. It was to many of us *the* Rose of our childhood, and its delicious perfume passes through the outer sense into our hearts, gladdening them with bright and happy dreams, saddening them with lone and chill awakings. It brings more to us than the fairness and sweet smell of a Rose. We paused in our play to gaze on it, with the touch of a vanished hand in ours, with a father's blessing on our heads, and a mother's prayer that we might never lose our love of the pure and beautiful. Happy they who retain or regain that love, and thankful I am that, with regard to Roses, the child was father to the man. Yes, I was a Rosarian *æt. med.*, IV, and in my seventh summer I presided at a "Flower Show"—for thus we designated a few petals of this Provence Rose or of some other flower placed behind a piece of broken glass, furtively appropriated when the glazier was at dinner, and cutting, not seldom, our small fingers (retribution swift upon the track of crime), which we backed with newspaper turned over the front as a frame or edging, and fastened from the resources of our natural gums.

And now, can any of my readers appease indignation and satisfy curiosity by informing me who first called the Provence Rose "Old Cabbage," and why? For myself, "I should as soon have thought of

calling an earthquake genteel," as Dr Maitland remarked, when an old lady near to him during an Oratorio declared the Hallelujah Chorus to be "very pretty." It must have been a tailor who substituted the name of his beloved esculent for a word so full-fraught with sweetness, so suggestive of the brave and the beautiful, of romance and poesy, sweet minstrelsy and trumpet tones. The origin of the title Provence is, I am aware, somewhat obscure. Mr Rivers thinks that it cannot have been given because the Rose was indigenous to Provence in France, or our French brethren would have proudly claimed it, instead of knowing it only by its specific name, *rose à cent feuilles*; but we may have received it, nevertheless, from Provence, as Provence, when Provincia, received it—*Rosa centifolia*—from her Roman masters, and may have named it accordingly. Be this as it may, we have rhyme on our side if we have not reason, and I vote "Old Cabbage" to the pigs.

The Rosarian should devote a small bed of rich soil, well manured, to the cultivation of this charming flower, growing it on its own roots, and pruning closely.

The Double Yellow Provence Rose, of a rich, glowing, buttercup yellow as to complexion, and prettily cupped as to form, full of petal, but of medium size, has almost disappeared from our gardens, and I have only seen it at the Stamford Shows, sent there from beautiful Burleigh. Although common at one time in this country, it seems never to have been happy or acclimatised. "In many seasons," writes the Rev. Mr Hanbury, in his elaborate work upon Gardening, published just a century ago, "these Roses do not blow fair. Sometimes they appear as if the sides had been eaten by a worm when in bud; at other times the petals are all withered before they expand themselves, and form the flower. For this purpose, many have recommended to plant them against north walls, and in the coldest and moistest part of the garden, because, as the contexture of their petals is so delicate, they will be then in less danger of suffering by the heats of the sun, which seem to wither and burn them as often as they expand themselves. But I could not observe without wonder what I never saw before—*i.e.*, in the parching and dry summer of 1762, all my Double Yellow Roses, both in the nursery-lines and elsewhere, in the hottest of the most southern exposures and dry banks, everywhere all over my whole plantation, flowered clear and fair." Here, in my opinion, the latter paragraph contradicts and disproves the former, showing us that so far from the Yellow Provence Rose being burned and withered by the sun, we have only now and then in an exceptional season sunshine sufficient to bring it to perfection. And for this reason we will leave it—

"If she be not fair for me,
What care I how fair she be?"

More kindly and gracious is the Miniature or Pompon Provence, always bringing us an early but too transient supply of those lovely little flowers which were the "baby Roses" and the "pony Roses" of our childhood. They may be grown on their own roots in clumps among other Roses, or as edgings to beds, De Meaux and Spong being the best varieties. The amateur is supposed to be already in possession of another Liliputian treasure, the Banksian Rose, commended to him when we discussed the Climbers; and I must here appropriately introduce him to one more tiny belle, Miss Ernestine de Barente, Hybrid Perpetual Rose, a darling little maid, with bright pink cheek and quite "the mould of form." The Miniature China (*Rosa Lawrenceana* or Fairy Rose) is more adapted for pot cultivation.

A few varieties from the Hybrid Provence section are valuable in the general collection, having those lighter tints which are still infrequent, being of healthful habit, and growing well either as dwarfs or standards. *Blanchefleur* is a very pretty Rose, of the colour commonly termed French white—*i.e.*, English white with a slight suffusion of pink; *Comte Plater* and *Comtesse de Ségur* are of a soft buff or cream colour, the latter a well-shaped Rose; *Princesse Clementine* is a *rara avis in terris*, but not a bit like unto a black swan, being one of our best white Roses; and *Rose Devigne* is large and beautiful and blushing. These Roses, having long and vigorous shoots, should not be severely cut, or they will resent the insult by "running to wood"—excessive lignification, as I once heard it termed, and burst out laughing, to the intense disgust of the speaker.

And now I am not entirely exempt from the fear, that with some such similar derision the reader may receive a fact which I propose to submit to him. It is, nevertheless, as true an incident in my history as it is a strange statement in his ears, that, once upon a time, some nine or ten summers since I was driven out of London by a Rose! And thus it came to pass: Early in June, that period of the year which tries, I think, more than any other, the patience of the rosarian waiting in his garden like some lover for his Maud, and vexing his fond heart with idle fears, I was glad to have a valid excuse for spending a few days in town. To town I went, transacted my business, saw the pictures, heard an opera, wept my annual tear at a tragedy (whereupon a Swell in the contiguous stall looked at me as though I were going to drown him), roared at Buckstone, rode in the Park, met old friends—and I was beginning to think that life in the country was not so very much "more sweet than that of painted pomp," when, engaged to a dinner-party, on the third day of my visit, and to enliven my scenery, I bought a Rose. Only a common Rose, one from a hundred which a ragged girl was hawking in the streets, and which

the swell I spoke of would have considered offal—a Moss-Rosebud, with a bit of Fern attached. Only a twopenny Rose ; but as I carried it in my coat, and gazed on it, and specially when, waking next morning, I saw it in my water-jug—saw it as I lay in my dingy bedroom, and heard the distant roar of Piccadilly instead of the thrush's song—saw it, and thought of my own Roses—it seemed as though they had sent to me a messenger, whom they knew I loved, to bid me “come home, come home.” Then I thought of our dinner-party overnight, and how my neighbour thereat, a young gentleman who had nearly finished a fine fortune and a strong constitution, had spoken to me of a mutual friend, one of the best and cheeriest fellows alive, as “an awful duffer,” “moped to death,” “buried alive in some dreadful hole” (dreadful hole being a charming place in the country), because he has no taste for stealing or being robbed at races, can't see the wit of swearing, and has an insuperable partiality for his own wife. And I arose, reflecting ; and though I had taken my lodgings and arranged my plans for three more days in London, I went home that morning, with the Rosebud in my coat.

Ah, my brothers ! of the many blessings which our gardens bring, there is none more precious than the contentment with our lot, the deeper love of home, which makes us ever so loth to leave them, so glad to return once more. And I would that some kindly author, who loves books and gardens too, would collect for us in one book (a large one) the testimony of great and good men to the power of this sweet and peaceful influence—of such witnesses as Bacon and Newton, Evelyn and Cowley, Temple, Pope, Addison, and Scott. Writing two of these names, I am reminded of words particularly pertinent to the incident which led me to quote them, and which will be welcome, I do not doubt, even to those gardeners who know them best.

“If great delights,” writes Cowley, “be joined with so much innocence, I think it is ill-done of men not to take them here, where they are so tame and ready at hand, rather than to hunt for them in courts and cities, where they are so wild, and the chase so troublesome and dangerous. We are here among the vast and noble scenes of nature, we are there among the pitiful shifts of policy ; we work here in the light and open ways of the divine bounty, we grope there in the dark and confused labyrinths of human malice ; our senses here are feasted with the clear and genuine taste of their objects, which are all sophisticated there, and for the most part overwhelmed with their contraries. Here is harmless and cheap plenty ; there guilty and expensive luxury.”

And Sir William Temple, after a long experience of all the gratifications which honour and wealth could bring, writes thus from his

fair home and beautiful garden at Moor Park: "The sweetness of air, the pleasantness of smells, the verdure of plants, the cleanness and lightness of food, the exercises of working or walking, but above all the exemption from cares and solicitude, seem equally to favour and improve both contemplation and health, the enjoyment of sense and imagination, and thereby the quiet and ease both of the body and mind." And again he speaks of "the sweetness and satisfaction of this retreat, where, since my resolution taken of never entering again into any public employments, I have passed five years without ever going once to town, though I am almost in sight of it, and have a house there ready to receive me."

Even so to his garden may every true gardener say, as Martial to his wife Marcella:—

"Romam tu mihi sola facis,"

"You make me callous to all meaner charms."

"Let others seek the giddy throng
Of mirth and revelry;
The simpler joys which nature yields
Are dearer far to me."

And let there be, by all means, among those joys included a bed of the Common Moss-Rose—a "well-aired" bed of dry subsoil, for damp is fatal—in which, planted on its own roots, well manured, closely pruned, and pegged down, it will yield its flowers in abundance, most lovely, like American girls, in the bud, but long retaining the charms of their *première jeunesse* before they arrive at rosehood. When the soil is heavy, the Moss-Rose will grow upon the Brier; and I have had beautiful standards of Baron de Wassenaër, a pretty cupped Rose, but wanting in substance; of Comtesse de Murinais, a very robust Rose as to wood, but by no means so generous of its white petals; of the charming Cristata or Crested, a most distinct and attractive Rose, first found, it is said, on the walls of a convent near Fribourg or Berne, which all rosarians should grow, having buds thickly fringed with moss, and these changing in due season to large and well-shaped flowers of a clear pink colour; of Gloire de Mousseuses, the largest member of the family, and one of the most beautiful pale Roses; of Laneii, for which, on its introduction, I gave half-a-guinea, and which repaid me well with some of the best Moss-Roses I have grown, of a brilliant colour (bright rose), of a symmetrical shape, and of fine foliage, free from blight and mildew, those cruel foes of the Rose in general, and the Moss-Rose in particular; of Luxembourg, one of the darker varieties, more remarkable for vigour than virtue; of Marie de Blois, a rose of luxuriant growth, large in flower, and rich in moss; of

Moussue Presque Partout, a singular variety, curiously mossed upon its leaves and shoots ; and of Princess Alice, nearly white, free-flowering, and much like Comtesse de Murinais. But, as a rule, they soon deteriorate on the Brier, and the amateur will best succeed in growing them as I have advised with reference to the Common Moss. Celina and White Bath I have not included in the preceding list, never having grown them as standards, but they deserve attention—the first for its exquisite crimson buds, the second as being our only really white Moss-Rose, but of very delicate habit.

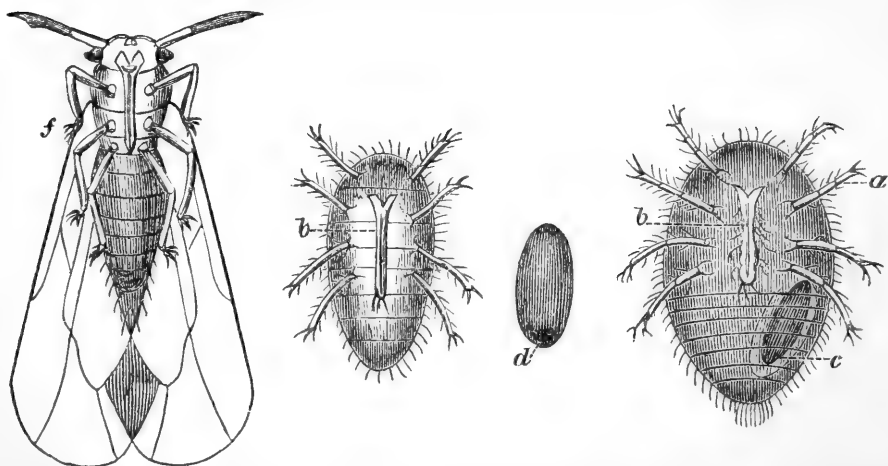
Of the Moss-Roses called Perpetual, and deserving the name as autumnal bloomers, Madame Edouard Ory and Salet are the only specimens which I have grown successfully in my own garden, or admired elsewhere. The former is of a carmine, the latter of a light rose, tint.

All the Roses which I have selected in this chapter are desirable in an extensive Rose-garden. To amateurs of less ample range or resources I would commend, as the most interesting, the Common and Miniature Provence, with the Common and the Crested Moss.

S. REYNOLDS HOLE.



VINE DISEASE IN THE SOUTH OF FRANCE.



Phylloxera vastatrix (J. E. Planchon).—Female specimens and their eggs. *a* and *a*, antennæ ; *b* and *b*, horns or suckers ; *c*, egg plainly visible in the body of the insect ; *d*, the egg ; *f*, winged form of the insect. All greatly magnified.

THE following account of a new enemy to the Vine, translated from a periodical published at Ghent (the 'Flore,' edited by Louis van Houtte), may not be unacceptable to the readers of the 'Gardener.'

In some localities of the south of France the Vines are suffering from the ravages of a destructive insect, which has lately been noticed for the first time. M. E. A. Carrière has just published in the 'Revue Horticole' an extract from

an article which M. J. E. Planchon contributed a short time ago to the 'Comptes-Rendus de l'Institut' (1868, p. 588). Here is the passage from the 'Revue':—

"I will here give a brief *résumé* of all I learnt about the habits of the *Phylloxera vastatrix* from a series of observations made on the spot, in three short visits to the south of France; also all I noticed with reference to the specimens which I kept in glass bottles during forty consecutive days.

"Its best-known form is that in which no trace of wings can be discovered. When the insect is about to lay its eggs (that is, in its adult female state), it forms a small ovoid mass, having its inferior surface flattened, its dorsal surface convex, being surrounded by a kind of fillet, which is very narrow when it touches the thoracic part of its body, which (formed by five rather indistinct rings) is hardly separated from its abdominal part of seven rings.

"Six rows of small blunt tubercles form a slight protuberance on the thoracic segments, and are found very faintly marked on the abdominal segments. The head is always concealed by the anterior protuberance of the buckler; the antennæ are almost always inactive. The abdomen, often short and contracted, becomes elongated towards laying-time, and there can be easily seen one, two, or sometimes three eggs, in a more or less mature state.

"The egg sometimes retains its yellow colour for one, two, or three days after it has been laid; more often, however, it changes to a dull-grey hue. From five to eight days generally elapse before it is hatched. The duration of this period depends a good deal on the temperature. The quantity of eggs, and the rapidity with which they are produced, are probably determined by a variety of circumstances—the health of the insect, the quantity of nourishment it is able to obtain, the weather, and perhaps other causes. A female which had produced six eggs at eight o'clock A.M. on the 20th of August, had fifteen on the 21st at four P.M.—that is, she laid nine in thirty-two hours. Other females lay one, two, or three eggs in twenty-four hours. The maximum quantity is thirty in five days. The eggs are generally piled up near the mother without any apparent order, but she sometimes changes her position so as to scatter them all around her. They have a smooth surface, and adhere lightly to each other by means of a slimy matter which attaches to them.

"Hatching takes place through an irregular and often lateral rent in the egg, the empty and crumpled membrane being found among the other eggs in different stages of hatching.

"During the first period of their active life—two, three, four, or five days, as the case may be—the insects are in an erratic state. They creep about as if they were seeking for a favourable situation. Their movements are more rapid than those of adults. They appear to inspect, as it were, with their antennæ the surface they travel over. The movements of the antennæ are generally alternative, and, if the comparison may be pardoned, are not unlike the two sticks of a blind man, which he uses to explore the ground he is about to tread.

"After a few days of this errant life, the young insects seem to fix upon a spot to settle in. Most frequently this is a fissure in the bark of a Vine, where their suckers can be easily plunged into the cellular tissue, full of saccharine matter. If you make a fresh wound on the root by cutting off a little piece of the bark, you may see the 'Pucerons' range themselves in rows around the wound, and, once fixed, they apply to the root their antennæ, which appear like two small divergent horns. At this period of their life, about the 13th or 14th day after their birth, they are more or less sedentary; but they change their places if a new wound is made on the root, which promises a fresh supply of food.

"What sense is this which directs these subterraneous 'Pucerons' towards the

place which is most suitable for them? It cannot be sight, as their eyes are merely coloured spots, and they creep as if they were blind. It cannot be hearing, because they seek no prey but a vegetable tissue. It is probably the sense of smelling; and one may well ask if the nuclei which appear enshrined in the last articulations of the antennæ are not the organs of this function, the seat of which has been so much disputed? Among these non-adult insects, attached by their suckers to the Vine-root, are seen, here and there, some of middle size. Their colour is a deeper orange, the abdomen shorter and more squarely formed. These individuals are more sedentary than the others. I have sometimes imagined they might be wingless (apterous) males of the species; but as nothing has happened to confirm this very problematical hypothesis, and as I have seen undoubted females much resembling these examples in colour and form, I incline to the belief that there are no sexual differences among them. A kind of double moult precedes the adult state. The first takes place shortly after birth, the second after laying-time. Some uncertainty, however, hangs over the number of these changes, as the cast-off skins are often found mixed up with groups of 'Pucerons' of different ages, and it is difficult to distinguish them. On the morbid tuberosities of the fibrous Vine-roots, or on the off-shoots of the roots, the 'Pucerons' (perhaps better nourished) seem to pass more quickly through the different phases I have described; but excepting that their colour is paler, they present no marked difference.

"The winged form of the *Phylloxera* might easily be taken for a separate species. The rare specimens which I have seen have all come from the 'Pucerons' nourished on the newly-attacked Vine radicles. In their infant (or it might be called their larva) state they resemble those which I have suggested may be males, but the buckler soon becomes more strongly marked than in these last; and a kind of band seems distinctly to define the separation between this and the abdomen. The sheaths of the wings, triangular-shaped and of a greyish colour, appear on both sides of the buckler. It is easy to predict the advent of a winged insect from this chrysalis. When one of these nymphæ is seen to quit its place and to crawl over the root, or up the side of the bottle where it may have been put, its transformation is near. Soon, instead of a sort of pupa, a beautiful little fly appears, whose two pairs of wings, crossed horizontally, are much larger than its body.

"It is impossible to doubt the identity of this insect with the 'Puceron' which formed one of the swarm on the Vine-root. The details of the structure of certain organs—the antennæ, claws, tarsi, and suckers—establish their identity.

"The horizontal position of the wings completely distinguishes the *Phylloxera* from the true aphid, whose wings are always more or less inclined upwards. The two larger wings, obliquely oboval and uniform, have a lineal areole on the larger basilar half of their outer edge; and this is enclosed in an interior 'nervure,' which answers, I suppose, to the radial muscle. One single oblique nervure (or corneous division) is detached from this last, and reaches to the inner edge. Two other lines start from the end of the wing, and, becoming narrower as they proceed, advance towards the oblique nervure, but end before reaching it. These are not, perhaps, nervures, but rather folds, for I have observed them absent.

"The inferior wings, both narrower and much shorter, have a marginal nervure running from the base to the middle, but it loses itself in a gentle protuberance, which the wing shows in this place; a radial nervure runs parallel to the first, and disappears before it reaches the same spot.

"The eyes, black and (relatively) very large, are irregularly globular, with marked conical nipples; their surface is granular, but a pointed depression is

observed in the centre of each glandule. A round eye-shaped spot occupies the centre of the forehead.

“Among fifteen winged specimens of the *Phylloxera* which have come under my notice, not one has presented any sexual difference. Almost all of them laid two or three eggs, and their death (which happened soon after) may have been caused by their imprisonment in the bottles. Their eggs resembled those of the wingless *Phylloxera*, and though they were only two or three in number, they completely filled the abdomen of the mother. They were easily seen by placing the insect under the microscope. I do not know how long the eggs remain before they are hatched, or if they always produce the winged form of the insect. It is probable that these winged individuals serve for the transportation of this insect plague to a distance; not that their wings would serve them for a rapid flight—they are too inactive, they move them very little, and in rising from the ground their horizontal position is preserved. My observations were, however, made under very unfavourable conditions, the insect being in a state of captivity; but I suppose that even in a natural state the wind is the principal agent for the dispersion of the *Phylloxera*, as it is for many of the insect tribe. In any case, the discovery of this form of the *Phylloxera* provided with wings, and evidently fitted for an aerial life, is sufficient to explain the hitherto embarrassing fact of the rapid spread of the Vine-plagues. As to the spread of the disease from one Vine to another, the wingless ‘Pucerons’ may suffice for this, as, grouped in great numbers about the lower part of unhealthy Vine-stems, they might easily attack the Vines nearest them, even if they be healthy. It may be asked in what manner these insects manage to travel from one Vine stock to another, and how they contrive to reach the fibrous roots of the newly-attacked stocks? Do they burrow under the soil, or do they not rather travel along the surface of the earth under cover of the darkness and coolness of night, and then, traversing the fissures in the bark, arrive in this manner at the extremities of the roots? This conjecture is a probable one, and the following experiment supports it:—

“In a case 1 yard long I placed some garden soil from Montpellier, a place entirely free from the *Phylloxera*. In this earth I carefully laid some pieces of Vine-cane infested with wingless ‘Pucerons.’ I placed a handglass over each cane, and slightly raised the glass on one side in order to allow the insect to creep out. At three centimetres’ distance from the pieces of cane I put some fragments of root from a healthy Vine, on which I had made fresh wounds. In twelve hours the following results were obtained: Three ‘Pucerons’ had found their way from one of the Vine-canes to the nearest piece of Vine-root. Some days after, twenty young ‘Pucerons’ occupied the same fragment. A few insects were to be found on the other fragments. One piece of root had attracted none, but the Vine-cane nearest to it had very few insects upon it which were capable of changing their places.

“A similar experiment has been made by M. Frédéric Leydier at the farm of Lancieux, near Sigondas (a part of the country already infested by the *Phylloxera*), and by another person near Sorgues. The results of these experiments have not been satisfactory; but this does not prove that, under other conditions, or with a greater amount of perseverance, they might not have been successful. It is fortunate that this new enemy to the Vine attacks it (in the first instance) at the base of the stem, and not underground at the fibres. As it is, a thorough dressing of the bottom of the stem with coal-tar will probably prove an insurmountable obstacle to the progress of this destructive insect; but were the case otherwise, it would be very difficult to get down deep enough to reach an enemy so well protected by the depth of the soil.”

THE CULTIVATION OF HARDY FRUITS.

(Continued from page 167.)

HAVING thus far detailed our experience upon the Pear, and having given what directions and instructions concerning its cultivation we deemed to be the best, it is now our intention to direct the reader to the cultivation of the

APPLE,

than which there is not a more generally esteemed or more useful fruit in cultivation. The varieties of the Apple are numberless, yet, notwithstanding, the really good and useful kinds are not so abundant. With a good selection and careful management during the winter and spring, it is quite an easy matter to encircle the year "with a gorgeous garland" of baking and dessert Apples. This was a feat once not of such easy accomplishment, but the skill and experience which have been brought to bear upon the raising of new and long-keeping varieties has accomplished the object for which our forefathers longed and waited in vain.

The Apple, like the Pear, should be propagated either by budding or grafting, or, where new varieties are wanted, by seed. Some of the more common sorts will succeed tolerably well from suckers and layers, but in all cases we would recommend them to be grafted or budded. There are various stocks used for the Apple, but the most common is what is popularly known as the "free stock"—the common Crab, or *Pyrus Malus* of Linn. There are several forms even of this stock, some of which are far more suitable than others. In selecting a Crab from which to gather seeds intended for raising stocks, there are several things to be considered. The tree should be healthy and fruitful, not a gross grower, and as little inclined to send up suckers as possible. If the tree is too gross in its growth, it will not prove a good stock, as it would impart too much vigour to the scion to make it fruitful; and all the root-pruning which might be done for it might never make it so fruitful a tree as if the stock used had not been so robust. The sort of stock which is best suited for the Apple in one locality may not be the best in another, and that for various reasons. The "free stock" is best suited for localities such as this, where we have an amount of rainfall nearly equal to any in Britain, in addition to severe and protracted frosts, to which we are liable less or more nearly all the year round. It is no uncommon thing in this locality to see the grass crisp and white before sunrise even in June and July. I have made this explanation in order to convey to the reader an idea of the sort of climate we have in the west of Scotland,

so that he may clearly comprehend what are our reasons for preferring the "free" to the Paradise or any other stock for this district. We prefer it because it is more hardy, and can resist better the evil influences of the moisture and wetness of the locality, and because it is better adapted for resisting the severe frosts which often succeed a continuation of wet weather in early spring and winter. We should, however, prefer the Paradise stock if it combined the good qualities in these particulars which are possessed by its more robust brother. When visiting Springwood Park, the seat of Sir George Douglas, in Roxburghshire, lately, I was favoured, through the goodness of Mr Wemyss, Sir George's able gardener, with a few stocks of a variety of Crab which has grown for hundreds of years in what is now called the Abbey Park, and which at one time was the property of the monks who inhabited Kelso Abbey. There are two trees standing together near the centre of the park, and tradition says—and appearance guarantees—that both had been planted by the monks. If this be so, they cannot be less than 325 years old; and in all probability they are much older, as the Abbey of Kelso was finally reduced to its present ruinous state in 1545. The two trees are as different in appearance the one from the other as day is from night. The one is strong, vigorous, and very healthy, and at a distance presents the appearance of a huge beech-tree. The trunk cannot be less than 10 feet in circumference, with a clear stem from 12 to 15 feet, from which the branches diverge in all directions, until they cover a space of ground which must be nearly 300 feet in circumference. It rises to a height of 60 or 70 feet, and is altogether by far the most noble tree of the kind I ever beheld. The other is quite a pigmy beside it. Its height cannot be more than 25 feet, and the tree altogether may be considered to bear much the same proportions to the other in every respect. It is more compact in its habit, very short-jointed, and presents a prickly appearance much resembling a blackthorn. It is from this tree that the stocks I have got have been produced; and from the nature and habit of the tree I am convinced it will make an admirable stock for the Apple. Mr Wemyss showed me several trees in the gardens at Springwood which had been grafted upon stocks raised from it, and which proved how admirably they suited the purpose. Several of them had been grafted seventeen years ago, and presented all the appearance of healthfulness and good constitution which could be desired, while they were dwarfed in their growth equally as much as if the Paradise stock had been used. Their height would be between 5 and 6 feet, forming trim little bushes full of plump and healthy blossom-buds; and Mr Wemyss assured me that no trees in the garden gave more regular or better fruit. Now this is the sort of stock which we require; and if it

proves to be possessed of all the good qualities which I believe it has, it will be a great acquisition, especially to fruit-growers in Scotland and the north of England. The Paradise stock is in much demand with many growers ; but, for the reasons already given, we are of opinion that it is neither hardy enough nor of good enough constitution for wet and cold localities ; in fact, as a rule it will not give much satisfaction farther north than the midland counties of England. I do not deny the fact that it may live and do tolerably for a few short years anywhere in Britain, but it is a well-ascertained fact that beyond the line I have indicated it can never take the place of the "free stock."

The raising of Apple stocks is done exactly the same as I have already directed for Pears, so that it is quite unnecessary for me to enter into details regarding it. I may, however, give the details of how seedling Apples are raised in Normandy. I quote from Mr Thompson's 'Gardener's Assistant,' page 461 : "In Normandy, where Apples are extensively cultivated, the pomace is taken and rubbed between the hands in a vessel of water, in order to separate the pulp from the pips. After allowing some time for settling, a part of the contents of the vessel is poured off, so as to get clear of the pomace and bad seeds, the pips at the bottom being the only ones that should be made use of. These are dried and kept in a dry place till they are sown. The sowing is then performed as soon as the hard frosts are over, for the seed of the Apple does not long maintain its germinative powers. The ground should be well prepared, finely pulverised, and enriched with decayed manure. Drills are made 1 inch deep, and from 7 to 9 inches apart, and in these the seeds are deposited, then covered with fine soil, and afterwards rolled, or pressed close with the back of the spade. It is sometimes advisable to mulch the surface, to prevent it becoming too dry. When the plants are 1 or 2 inches high they are thinned out in rainy weather, otherwise the seed-beds should be watered to settle the earth about the roots of the plants left." The after-management of the seedlings with regard to transplanting and general management is exactly the same as I have given when treating of the raising of seedling Pears (see page 16 of the January number); and as it is quite unnecessary to make a repetition of the same, I must refer the reader to that number for full information upon that point.

It is a point ever to be attended to, however, in the management of either stocks for grafting or seedling Apples, to get them to grow vigorously, and ever keep them in a healthy state. For this purpose they ought to be annually dressed with good rich manure, which ought not to be placed in direct communication with the roots, but in such a position as to derive all the benefit possible from it. Root-pruning of the stocks ought to be as regularly practised as if they were young

Apple-trees ; for it does not only keep the roots from wandering, but it is also the means of inducing a hardy and robust constitution in the plant, which it must at once impart to the scion. It is a well-ascertained fact that the stock has considerable influence over the scion, both with regard to the markings and colourings of the foliage, and the size and flavour of the fruit. If this be the case, it is quite an easy matter to see that the healthier and hardier the stock is before grafting, the healthier and hardier we must expect the scion to become after the union. In all garden practice this is an accepted rule ; yet, strange to say, in the matter of stocks for grafting hardy fruit-trees upon, it is as a rule almost entirely lost sight of. How often do we see a lot of stocks for grafting huddled up into an out-of-the-way corner altogether unsuited for their growth, receiving no attention whatever, but allowed to grow and ramble at large until they are required for grafting ! Such practice is altogether antagonistic to sound reason, and no wonder the results of grafting upon such stocks should so often prove very unsatisfactory. Let us be more careful in the management of our stocks, and I fear not but that we shall have healthier and hardier young fruit-trees, which shall be a credit to the raiser and a profitable investment to the buyer.

JAMES M'MILLAN.

(*To be continued.*)



JOTTINGS ON THE TULIP.

NO. II.

“Not one of Flora's brilliant race
 A form more perfect can display ;
 Art could not feign more simple grace,
 Nor Nature take a line away.

—MONTGOMERY.

To cultivate a hobby is not generally to make a fortune—and even a fair amount of fame is not always attainable. But, on the contrary, a considerable degree of ridicule more frequently falls to the share of those whose whims and fancies do not quite accord with our own, and which, with but very few exceptions, each one of the human family is so intent on carrying out his own hobby, in a lesser or greater degree, with all the ardour and perseverance worthy of a greater work. We are too ready to censure and ridicule our neighbour for the zeal he displays in overcoming an obstacle in the way to the end he has in view—the carrying out his own *ideal*—at the same time forgetful of the equally extravagant fancy of our own adoption.

Parson Gilpin's neighbours could see nothing to admire so very

much in his bed of Tulips, and wondered why he bestowed so much care and attention on so frivolous an object. It was the parson's hobby, and he carried it out with a right good will, regardless of the criticisms of those whose hobby would perhaps prove far more expensive and absurd than his own. Very likely the good man raised his own seedlings, and consequently escaped an item of expense not always within the compass of a parson's purse. However that might be, history does not record the fact, and we are left to presume that he did ; and if he did not, he would assuredly neglect one of the greatest charms that floriculture can bestow on the amateur florist ; for if one branch of floriculture more than another is calculated to afford a greater amount of pleasure to the ardent cultivator, it is that which is offered in the production of seminal varieties.

The Auricula, Pink, Carnation, Picotee, and other florist flowers, have each its own admirers, and its own field for operation, and have all made rapid strides of improvement, under the hand of the skilful hybridiser, within the last twenty years ; and, notwithstanding, there remains abundant scope for the persevering and enterprising votary before he arrives at the point where improvement is unattainable. To the Tulip this remark is especially applicable—there being abundant scope for improvement, and but few, comparatively, earnestly intent on carrying it on. And the reason seems apparent when we take into account the length of time it requires to test the produce of a pod of seed. The planting year after year, for five and very frequently for six successive years, of the little bulb, and the consequent care and attention this entails before one bloom rewards the patience of the raiser of them, is doubtless the bar to the commencement of raising seedlings by so many of the Tulip's best cultivators and warmest admirers.

Could I but point out a way—a royal road—by means of which the zenith could be attained in a single year, these stray notes might possibly be pronounced worthy of the space they occupy ; and the complaint would then very speedily be without foundation, in the fact that the Tulip is far behind its compeers in properties and attractions. Every grower might then be induced to try his “prentice hand,” and we should soon have abundant proof of the advancement the flower is capable of.

But as I cannot promise the knowledge of this royal road, I may perhaps be allowed to mention the attempts of a London nurseryman, some fifty years ago, to hasten on the growth of seedling bulbs generally, by what might be termed an artificial method—namely, sowing the seed as soon as ripe, and not suffering the young plants to die down at the end of a season, but applying stimulants, and

allowing only short intervals of rest, thus giving the bulbs three or four seasons of growth in two years, by this means attaining the object in view.

Seeing a notice of this new method induced me in 1840 to make an autumnal sowing of Tulip-seed ; but I failed entirely in producing germination until the following year, when the young plants appeared at the same time as those sown six months later ; and I never afterwards made a second attempt, but contented myself with the old plodding system, requiring a little more patience, and have now each succeeding May some new breeders as a reward for my labour.

The last season of 1868 was, beyond every previous one in my experience, the best for obtaining large quantities of well-matured seed ; so that, if the amateur can be said to make his fortune by his hobby, he surely had it in his own hands, had he embraced the opportunity afforded by such a fine year of brightness and splendour. Whether under an awning—where the Tulip will rarely perfect its seed—or on the open bed, the result was the same. Seed could be obtained for the mere trouble of allowing the pod to ripen ; and hundreds of young plants an inch or two in length in early autumn bore ample testimony to the quality of the seed. To place the usual glass protector over the ripening pod was not at all necessary to keep out the wet and to retain the heat ; for the heat was most excessive, and the wet most ardently longed for all the time the pods were maturing, and never fell. The consequence is, a finer sample of seed could not possibly be desired—so bright and full, and with the promise of every seed germinating. So there are doubtless some grand specimens in embryo, to appear in some future year, to delight and gratify the fortunate possessor, and place his name side by side with Clarke, Lawrence, and Goldham, who were all successful in their day ; or, later, with Gibbons, noted for his batch of Chellastons ; with Mr Headley of Stapleford, who can outnumber so many of his compeers in new and beautiful varieties of his own raising ; and with Mr Storer of Derby, whose superb Bizarres are the admiration of every grower of a bed of Tulips.

The parents of this justly-esteemed batch of seedlings were Gibbons's Pilot crossed with Shakespeare ; and the colours of the progeny lean, in some to one parent, and in some to the other. But to compare them with either would be giving but a very faint idea of the beauty of the offspring. All are so great an improvement on the parent stock that comparison would fall infinitely short of the mark. I might enumerate a score or more of these beautiful Bizarres, could I only give them each a name, which the raiser unfortunately neglected to do in so many instances, and left them entirely to the fancy of

future growers for the mere chance of one to distinguish them by. So, like the Chellastons, which were ushered into the world some thirty years before them, producing, in the words of our dear old respected friend Fred Wood of the Coppice, "confusion worse confounded," so truthfully applied by him to the Chellastons. You had only to forward your order to the fortunate raiser, with a draft for the amount, to be convinced of the fact; for in the most generous manner possible would he pay attention to your requirements by packing you off, in one parcel, breeders and broke flowers, flowering roots and offsets, leaving it to yourself to supply the lacking nomenclature he was so sadly regardless of.

I find want of space compels me to leave the description of a few of these beautiful seedlings for a future paper. OMICRON.

April 1869.



HINTS FOR AMATEURS.—MAY.

THE past mild winter, cold biting March, and the warm weather we have experienced in April, have given us a "hint" not to put too much dependence in what may seem to tempt us to leave tender plants of any kind unprotected, as it is in changeable weather that mischief is generally done. After hot sunny days cold nights often follow. It is better to err on the safe side than run any risk. This is applicable to half-hardy plants, and also hardy ones which have been protected from severe weather. We have lately seen the thermometer standing at from 50° to 60° in the evening, and the following morning the ground in low-lying places has been quite stiff with frost. Vegetables—such as French Beans, Tomatoes, Potatoes, &c.—which have been brought forward under protection, must have that protection continued at night for some time to come. Some of the hardiest plants we have often seen killed by sudden exposure after being protected. As an example, we bought a great many dwarf common Yews to form a hedge. After they were planted, a severe frost, in March, set in and killed the most of them. A number of our own, taken from our exposed "storing-ground," and planted with the others at the same time, were left unscathed. So much for protected hardy shrubs, and *vice versa*. It may thus be necessary to caution amateurs and others to ascertain in what position and other circumstances plants have been kept in nurseries before they take them to exposed positions for planting. Of course, green healthy-looking plants are often the effects of injudicious protection. We have lately removed many thousands of the usual bedding plants from high temperatures under the shade of Vines, &c., and have not had

any injury done to the most tender kinds. They are placed in sunk pits with boarded covers, which are removed by degrees till the plant will stand sun and air ; but when wind is cold and biting, little air only is given, and that from the opposite side from where the wind comes. Glass, as a matter of course, would save much trouble and labour in such cases ; but in its absence many makeshifts can be of tolerable service. When flower-pots or similar coverings are used for protection, they should stand clear of the leaves, otherwise they would be worse than useless.

The main early crops of Scarlet Runners and French Beans may now be sown. The former do well as a blind from anything unsightly, or in a row similar to Peas. However, they require good deep soil, otherwise they would seed prematurely and run themselves done ; but by mulching, watering, and keeping the pods well picked off, they would keep on bearing all the season ; but it is safe to have two or three successions. They may be planted 3 or 4 inches apart in the rows, and stake them before the wind destroys the foliage. They can be kept dwarf and in full bearing by topping them in. They thus form neat edgings to other crops. French Beans, being dwarf, are of little trouble, but the rows should be at least 2 feet apart. In Scotland or the colder parts of England this crop should be sown in the most sheltered parts of the garden, as in cold seasons they often do not come to much. Peas for succession should be sown at least twice or three times in the month ; and if these are in properly-prepared ground, they will give pickings till frost takes them ; this applies to Scotland. In England we always could sow a month later with success ; but if watering, mulching, and the crop kept cleanly picked before the pods become old, are neglected, no other attention will secure success. Peas delight in deep well-cultivated soil, and the seed should not be too thickly sown. Stake them in time, as the breaking at the necks of the plants causes premature fruiting. We top strong-growing kinds back, which causes them to break out and pod freely. Mildew is often the result of ground left untrenched, the roots going only to the hard bottom, and therefore cannot escape drought. The warmer soil and climate in the south give greater facilities for close cropping than in the north. Early and late crops are more easily secured, and more abundant supplies can be taken out of less ground, than in the north. Judicious manuring, winter trenching, &c., must in every case be carried out. Allowing change of crop is also of great importance. We make this an easy matter with Peas, as they are sown in single rows, dividing off other crops ; and though in the same quarters of the garden every season, are seldom near the same place. Small successions frequently sown are necessary to keep up regular supplies of most things. We have seen in market-gardens near London three

crops coming on at once in the same ground; and although we could in a great measure do the same in private gardens in England, we could not with any chance of success attempt the same in the north. The practice is excellent where it can be carried out, as one crop is off and used up before the space is filled up by the other. The surface-soil should not be allowed to become baked over the roots of any vegetables, but the steel fork, hoe, &c., should be freely used. The loose surface acts as a mulching. Sow broad Beans for succession as formerly advised, and top the stalks when enough of flowers show for a crop. Let all early sowings of crops, especially roots, be looked over, and where failures have occurred, let them be made up without delay. Early Horn Carrot will come in quickly if the larger kinds have been destroyed. When the ground is stiff, lime may be freely dug in, which will help to destroy grubs, &c. We saw, the other day, this practice carried out with great success in an old garden where Carrots, Parsnips, &c., had failed for many years. Light ground would not be benefited in the same way by lime. Soakings of lime-water are of great service where grubs are destructive. Soot and guano dusted among growing crops in showery weather are useful agents for promoting free growth. Sow more Turnips, and thin any requiring it; for drawing young 6 inches apart will do, but for larger size 8 to 12 inches is not too much. Carrots thinned out 4 inches apart will be enough for drawing young, but 8 to 12 inches in good ground is not too much for the larger-growing kinds. Beet will do well at 8 inches apart. Parsnips we thin to 15 inches between each plant; when allowed to remain too thick, the tops are liable to decay. Celery may now be pricked out without delay. Shade them often till they are growing freely, and give plenty of water. Moist rotten dung 4 inches thick will do well for pricking out on. An inch or two of fine soft soil on the surface is necessary for the young roots to be planted in. We give the usual caution not to "firm" the necks of the seedlings instead of the roots. Make ridges for planting out earlier crops, which may be wide enough for three or four rows, though many prefer one row only to a ridge; the space may be wide or narrow accordingly. Though many growers prefer only 8 inches between each plant, we believe as heavy a crop can be realised when a foot is allowed between each plant, and the quality will be very much better. Lettuce, French Beans, Turnips, or Dwarf Peas can be grown on the tops of the ridges; and a row of tall Peas at each side of the plot is a good practice, as Celery likes a little shade when plenty of water is not at hand. Abundance of water may be given at all times; and if the manure placed in the trenches is not extra good, abundance of manure-water will do great things. Broccolis of the

early and autumn kinds may be sown for succession. Walcheren and Snow's especially will be useful. Cauliflowers should be planted out before they become stunted in the seed-bed. Wood-ashes and soot placed by the roots of each plant in process of planting will help to keep "clubbing" in check. This practice is useful with all such plants. Lettuce may be thinned out, and the best of the thinnings planted on cool ground in a shady position. Sow a good breadth for summer crops, to be likewise thinned. Plenty of manure and well-worked ground are necessary to give crispness to Lettuces. Fill every space that can be spared with Brussels Sprouts, Kale, Savoys, Broccoli, Cabbage, &c. The quantities can only be regulated by the demand for each kind. Plenty of Kale and Brussels Sprouts are of great service when winters are severe. The above, except Cabbage, may all be planted into neatly-drawn drills 2 feet apart, and the same distance in the rows. Cabbage may be planted thickly, and the crop reduced to every alternate plant, using those pulled out for greens in autumn if required. Savoys generally are wide enough apart at 18 inches each way. We always make a puddle with a little soot, red-lead, earth, and water, dipping in the roots and stems before planting. This, with a good soaking, is all we require to give them, except plenty of surface-stirring with the hoe. The roots get into the deeply-trenched ground, where drought cannot reach them. Vegetable Marrows, Gourds, Ridge Cucumbers, and Tomatoes, prepared as formerly advised, may be put in their bearing-quarters from the third week in the month to the first week of June. Protection with handlights, &c., after planting, till the plants are growing freely, is of great importance when plenty of fine produce is wanted. In Scotland and north of England Tomatoes require walls for training and fruiting the plants on. The Orangefield does well in pot, and requires no training. We prefer training the free-growing kinds with one stem running like a rope, rubbing off every lateral as it appears, saving the bunches of flowers which appear at every joint. In the southern English counties all the above are grown with as little trouble as Potatoes. Though ridges of manure are thrown up for Cucumbers, and covered with good soil, we have had them do equally well in common borders. A start with warm manure and handlights brings them into bearing quickly. New Zealand Spinach does well in any open piece of ground. A few plants raised in pots and planted out will give a large supply, and saves labour and ground in keeping up supplies of round-leaved Spinach. Keep up a supply of small Salad by sowing small pinches frequently, and giving plenty of water in dry weather. Cucumbers and Melons will now require less attention than they did earlier in the season; but careful attention, with air and water, is necessary, keeping

the shoots thin and pinching out the tops of Cucumbers above the fruit. They should not be allowed to bear too many. Melons should be set all at one time, keeping the structure dry and airy till the fruit is like hen's eggs ; then give a good watering (at a temperature of 80°) all over the bed, keeping the collars of the plants dry. Keep linings well made up, to keep up the temperature at night from 65° to 70°. Some allow it much higher, but they do well at 70°.

Fruit-trees will require to be disbudded as formerly advised, but doing it only by degrees, and not suddenly exposing the fruit, which might cause much dropping off. Stop gross-growing shoots, or take them off if they can be spared. Use the engine or syringe freely to keep the foliage clean and healthy. When the fruit is swelling and the leaves firm, the whole of the under sides of them can be sprinkled with water in which 2 oz. of hellebore powder to the gallon has been mixed. A little soft-soap mixed with it will cause it to stick better. A pipe syringe, with the finger pressed on it so that the liquid comes out as spray, prevents it from running off. We use this extensively and with great success for wall-trees, as well as gooseberry and other fruit bushes, for the prevention of caterpillar, &c. Fruit-trees lately planted may require a good soaking of water, and some dry soil thrown over the surface of the roots to prevent evaporation. Better to give plenty of water and have done with it, than frequent dribblings, which only keep the soil cool and prevent free growth.

All shrubs lately planted require at least one good soaking—mulching them is also of great service. Keeping them from being blown about by wind is indispensable to their wellbeing ; stakes and ropes at equal distances, all round large trees, are the most secure method we adopt. Many large Hollies, Rhododendrons, Yews, Boxes, and Pinuses, are doing well with us, which were lifted during the past season, and have only had one thorough watering ; but a heavy mulching of rotten leafy manure was given immediately afterwards. One large Holly 40 feet high, lifted from a rocky piece of ground with a small ball, but with well-cared-for roots, had a cartload of mulching to itself, and two men carried water to the roots for an hour. The tree is pushing into fresh growth as if it had never been moved.

Lawns and walks require close attention to keep them in good order. Mowing frequently, and rolling after showers, will keep this part of the grounds in good condition. A watering with guano-water, at the rate of a small handful to 3 gallons, will aid grass which has been lately sown. Dustings of guano in showery weather will help it on.

All plants for decoration outside should now be gradually hardened, by exposing them to light and air when weather will permit. Such plants as Pansies, Cerastium, Variegated Dactylis, and other hardy

plants, should be put in their permanent quarters. Planting is generally commenced from the 20th to the end of the month. The ground should break freely with the trowel while planting is going on, and the soil be pressed gently to the roots. A watering should be given afterwards if the ground is very dry, and dry soil drawn over it will prevent evaporation ; but if watering has to be repeated, a good soaking all over should be given. Annuals for late blooming should now be sown, and those up thinned to 3 or 4 inches apart. Let the hoe be freely used among Roses, and if the soil is light and the weather dry give good soakings of water. Cow-dung water, reduced by using 1 gallon to 6 of soft water, will be found a safe stimulant. Look after suckers, which soon take the lead on weakly-growing kinds. They should be cut off close to the stock. Tulips may be kept from heavy rains—canvass coverings stretched on wooden frames answer well—if fine flowers are valued by growers of these bulbs. Stake and tie up Pinks and Carnations when they are ready ; wind soon snaps the flower-stems when they are tall. Give attention to plants under glass by shifting them as the roots come to the sides of the pots. See that drainage is kept clear, and that no weeds or greenness appear on the surface of the pots. Frequent stirring keeps the soil healthy. Water may now be given in the after-part of the day to everything except plants lately taken from heat to cold. A stock of Calceolarias, Fuchsias, Pelargoniums, Heliotropes, &c., may be potted for window-gardening or for flowering in greenhouses. Some of the free-growing Verbenas have a fine appearance growing in pots or baskets. If the leading shoots are trained out flat on circular wire, and the side-shoots allowed to grow upright, they are superior to any Achimenes extant, and no unsightly stakes are seen. Windows can be kept gay with Stocks, Asters, Mignonette, Geraniums, Nasturtiums, &c. Great attention with water is necessary. We lately saw a window in Edinburgh gay with Tulips, Narcissus, *Isolepis gracilis*, common Ferns, Saxifragas, &c. Shells of cocoa-nuts, baskets, pieces of rock, &c., were used for growing them in with excellent effect. Glass cases were placed in front of the windows, divided into apartments to suit the various kinds of plants. One great fault was that air could not be given to the dwelling except by passing through the plants. Though the fragrance was pleasant, we are not of opinion that it was conducive to health.

M. T.



NEW PLANTS OF THE PAST MONTH.

THERE must be a demand still for named Cinerarias (though named varieties are by no means so popular as they were a few years ago), or else it would not repay the trouble of raisers to name their seedlings and exhibit them as such. As producers of new kinds, Messrs F. & A. Smith of Dulwich, London, are almost alone in the work ; and, during the past month, they have on two occasions exhibited some new kinds, to two of which first-class certificates were awarded—viz., Royal Purple, having a broad rich purplish-blue edge, with a slight ring of white as a ground colour round a large pale disc ;—the flowers were of massive proportions, smooth, and somewhat unduly reflexed : and Orb of Day, the broad edge of an intense rosy crimson, and narrow ring of white as a ground, surrounded with a belt of vivid crimson at the junction of the two colours, and large white disc. Both are fine and telling varieties. The same raisers received a second-class certificate for Ino, white ground, with a narrow edge of bright rosy-purple, and dark disc, a pleasing flower.

Azaleas, also, have come to the fore, being represented by some good flowers. Foremost for its rich colour and general fine properties must be placed La Superbe, exhibited by Mr C. Turner, a large bold flower, of a bright orange crimson hue, darker and better in colour than Stella, as well as of greater size, though somewhat flat, and appearing to have a vigorous habit and free blooming. A very promising variety, named Emma Ivery, was exhibited by Messrs Ivery & Son, Dorking. It was in the way of Charmer, but of a deeper and better colour ; and though a little rough as shown, it had the appearance of being seen in better condition later. It is of a fine glow of colour for exhibition purposes. Rosa Ivery was another variety in the way of Charmer, but paler, and had a very pretty and pleasing flower. James Veitch, exhibited by Messrs Veitch & Sons, is a variety that was much admired at the International Exhibition at Ghent last year. It is of a bright deep violet rose, very effective in colouring ; but the flower was small, rough, and crumpled.

Hyacinth Hector, exhibited by Mr William Paul, is a fine greyish pale single blue variety, of massive proportions and superb finish. It is of a very pleasing hue, and promises to be a favourite flower when it has increased sufficiently to be distributed, probably some fifteen or twenty years hence. It was awarded a first-class certificate. A pale buff single variety named Sonora was also exhibited by Mr W. Paul. In point of size the spike was good, but the bells being small and very numerous, it had a rough appearance ; while the foliage

was so tall that the spike of bloom appeared to be lost in a well of vigorous green leaves.

A first-class certificate was awarded to a distinct dwarf-habited Agave, named *De Smetiana*, one of the smaller-growing species, in which the leaves have a pale-brownish margin, broken up by irregular, coarse, flattened spines of the same colour, varying in form and curving in different directions. It was exhibited by Mr Green, gardener to W. Wilson Saunders, Esq. of Reigate.

The same award was made to Messrs E. G. Henderson & Son, for *Spirea* (*Hoteia*) *Japonica variegata*, a variegated form of *S. Japonica*, of a very striking appearance, the red-stalked leaves having all the main veins marked out with creamy white, producing a pale-golden reticulated variegation. It had been imported from Japan by the exhibitors.

In the way of Orchids, a first-class certificate was awarded to Mr B. S. Williams for a *Cœlogyne*, supposed to be *Ocellata*, though in the form shown it was new to Orchid-growers. It formed a pretty dwarf plant, and had a raceme of pure white flowers, marked on the lip with a large yellow blotch, which was bordered by a red line. Second-class certificates were awarded to Messrs Veitch & Sons for *Cymbidium tigrinum*, a very distinct-looking plant, with long olive-tinted sepals and petals, and a white lip marked with transverse bands of purple; and to a very fine variety of *Oncidium nubigenum*, named *Ocellatum*, from Mr William Bull.

A first-class certificate was also awarded to Mr W. Bull for *Ficus Eburnea*, a fine species of bold character, with large, shining, ovate, green leaves, marked with white ribs. A very curious species of *Lilium*, in some respects very like an *Ornithogalum* in appearance, was exhibited by George F. Wilson, Esq., who had received it from Mons. Leichtlin of Carlsruhe. It was named *L. Thomsonianum*, and had an inflorescence branching from the very base, about a foot and a half high, bearing numerous narrow-petaled, pale-pinkish flowers, the leaves long, narrow, and flaccid. This plant was the occasion of a sharp debate as to its value, but was eventually awarded a first-class certificate.

A like award was made to Messrs Veitch & Sons for a yellow-flowered Eastern *Rhododendron*, with long narrow leaves and showy clear yellow flowers, which was supposed to be the same as one previously shown under the name of *R. Brookeanum flavum*, but to which the designation of *R. Lobbianum* had been applied. A bold and showy truss of flowers of *R. Batemani*, a Bhotan species, with purplish-crimson black-spotted flowers, came from James Bateman, Esq., Congleton. It was said to be adapted only for indoor culture, and in this respect was not superior to others in cultivation.

From Mr Atkins, Painswick, the raiser of *Cyclamen Atkinsi*, came

a *Triteleia*, with flowers of a deeper tint of blue than generally appears in *T. uniflora*. It was, no doubt, closely allied to this species, which is one of the most useful of the hardy spring-blooming plants.

R. D.



NOTES ON HARDY HERBACEOUS PLANTS.

ADENOPHORA is a genus closely resembling, in all superficial features, *Campanula*, from which it was separated on account of the glandular cylindrical tube or disc that surrounds the base of the style. The generic synonym *Campanula* is therefore common to all the species, and under that name they are sometimes circulated in Continental lists. They are very useful hardy herbaceous plants, but possessing very little variety of colour, stature, and habit—blue, in lighter and darker tints, being the colour of all. They will be found most useful for the shrubby and mixed border, and are easily cultivated in almost any kind of garden soil, if not wet and stagnant.

A. liliifolia is perhaps the best and most useful species in the family. It grows to the height of about 2 feet or $2\frac{1}{2}$ feet, with narrow lanceolate leaves and rather erect stems, terminating in panicles of pale-blue flowers, which appear in the end of May, and last till the middle or end of September. Native of Siberia and Dahuria.

A. suaveolens reaches the height of about 2 feet, with erect stems and spreading terminal panicles of pale-blue flowers, appearing in June and July, often also throughout August. Native of Siberia. This species appears to be a dwarf and more compact form of the *A. communis* from the same country, but a taller and coarser plant every way than the *A. suaveolens*. It is also sometimes confounded with *A. liliifolia* and *vice versâ*, from which, however, it is distinct; and at present in this country it is more plentiful.

Symphandra is a genus of *Campanulaceæ*, consisting, so far as is at present known, of only one species. It is simply a peculiar *Campanula*, and was separated from that genus on the ground of the anthers adhering together somewhat in the manner of the *Compositæ*. The only species, *S. pendula*, syn. *Campanula pendula*, is a native of the Caucasus. It is a choice and distinct plant, growing 1 foot or $1\frac{1}{2}$ foot high, with erect stems terminating in rather spare spikes of drooping cream-coloured flowers, large and campanulate, and appearing in June and July. It is regarded as being difficult to keep, and by some on this account it has been set down as a biennial, but it is not so. It is, however, very impatient of full exposure to the sun in light dry soils, and

delights in a cool somewhat shady situation, as on the north side of rockwork, or a bed of shrubs, where it would escape the scorching effects of the mid-day sun; and in such circumstances it will be found neither troublesome nor fugitive.

Trachelium is another genus of Campanulaceæ, which is very distinct in feature from any of the other genera. The only species, *T. cæruleum*, which has proved hardy in this country is a native of southern Italy. It grows about $1\frac{1}{2}$ foot high, with many erect stems clothed with ovate acute dark olive-green leaves, and terminating in crowded corymbs of dark azure-blue funnel-shaped flowers, lasting from June till August. It is rather a showy plant while in flower, but the flowering period is followed by one of considerable seediness. Its chief recommendation is, that it adapts itself pretty comfortably to droughty situations, and is quite at home with a handful or two of soil on an old wall or piece of rock.

In the natural order Ericaceæ there are very few hardy herbaceous plants. Among the *Chimaphilas*, *Pyrolas*, and *Monotropas*, there are some curious and pretty things; but in a horticultural sense they are almost destitute of beauty, and at the most can only be recommended here for cultivation among alpine in partially-shaded rockwork, in sandy peat and a little loam. They should never be disturbed while doing well. But there are certain of the shrubby genera of this order of plants which contain species and varieties of great excellence for the herbaceous border, the margins of shrubberies, for grouping in the spring garden, and for decorating rockwork, as taste and circumstances may prescribe. *Erica* yields the largest number of valuable things for these purposes. *E. carnea* and its varieties form, perhaps, the most interesting and beautiful group of these hardy heaths. They begin to bloom often so early as January, and continue flowering on till May and June. They are most easily cultivated, and, being of dwarf compact habit, they are available for the spring garden; and if kept in pots in the reserve ground, their value as temporary tenants of the beds of the summer flower-garden, in circumstances requiring these to be filled in winter, is very high indeed. *E. tetralix*, and the few varieties sprung from it, are handsome, and flower from June till August and September. *E. Australis* is another early blooming species. It comes on in March, and lasts till the end of May, and often into June. *E. Mediterranea* begins to flower about the same time as the last-named species, but continues for a shorter period. This is by some considered merely a more erect and taller form of *E. carnea*, but as it is a remarkably distinct form, it is quite entitled to a specific appellation in gardens at least. The var. *nana alba* of this species is a fine compact sort for rockwork or for the spring garden. *E. cinerea*,

one of the most common of our Scotch heaths, is at the same time, in some of its varieties, one of the most handsome. They flower throughout the summer and autumn. *E. vagans* and its varieties, also summer-flowering, are pretty dwarf dressy things. *E. ciliaris* is one of the handsomest of hardy heaths, with large purple or pink flowers in leafy racemes. It flowers in summer and autumn. Some of the varieties of the common "*Ling*," *Erica* or *Calluna vulgaris*, are pretty, and well worth a little attention. They are now rather numerous, and vary much in habit, some forming neat tufts or cushions, while others are rather loose and straggling.

Menziesia furnishes several brilliant and elegant species and varieties. *M. polifolia* and its varieties, of which there are now eight or nine, are a beautiful and showy group of summer-flowering dwarf shrubs. The dark purple, the white, named *globosa*, and the *nana* varieties, are the best. The latter flowers from June far into the autumn, and is quite a gem. The charming and rare little *M. cærulea* is more difficult to grow and keep than the foregoing sorts, but it is well worth a little trouble. It succeeds best in sandy peat on rockwork, in a rather moist situation. *M. empetrifolia* is a most beautiful dwarf species from North America, with rosy purple or pale-red flowers, which must be cultivated in the same way as the last-named species.

Azalea procumbens, syn. *Loiseleuria procumbens*, is rather rare, but a beautiful and attractive little evergreen shrub, with terminal clusters of pink or rose-coloured flowers. It should have a moderately shady place on rockwork in sandy gritty peat.

Bryanthus erectus, syn. *Menziesia erecta*, with something mongrel-like in its aspect, is a most beautiful thing, with heads or clusters of pink flowers in the way of *Kalmia glauca*, from which, as one parent, it is supposed to be derived, being regarded as a natural hybrid. It delights in a shady moist position on rockwork.

Epigæa repens is a dwarf, trailing, evergreen shrub, rarely rising above 9 inches high, with white—in some individuals, pink—flowers in small clusters, very fragrant, delighting in shady places, and excellent for introducing into woods where the native vegetation is not of a rank character, and where the soil is peaty, or composed of decayed leaves and sand.

W. S.



CAPE HEATHS.

A HEALTHY well-grown Heath—no matter of what species or variety, whether in flower or out of flower—is always a pleasing object, and never fails to elicit admiration, even from those who are least susceptible

of the influence of floral beauty. In all the sorts there is a symmetry and elegance in the habit and foliage peculiarly their own, while the rich yet chaste beauty of the flowers, both in form and colour, can scarcely be surpassed, rendering them worthy of all the care and application necessary to their full development. They form one of the largest groups of greenhouse plants in cultivation, an immense number of species having been introduced, from first to last, from their native habitat; and as these are being continually augmented by the labours of the hybridiser, ample scope is afforded for selection, and, if done judiciously, a show of bloom may be secured during the greater part of the year.

Notwithstanding their merits and capabilities for decoration, however, they are by no means so universally grown as they deserve, or even as they were some twenty years ago, when a few specimens were considered indispensable, even in the most limited collections, and when the Heathery was a never-failing adjunct to the large establishment. This seems now rather the exception than the rule; and where they are really grown, they too often bear the marks of careless treatment, if not utter neglect. It is no doubt quite true that in many gardens they are still grown, and brought to a perfection such as we believe they never reach in their native table-land itself; and the specimens which from time to time adorn our show-tables, reflect the highest credit upon the exhibitors. But we claim for our favourites a larger share of attention, and a far more prominent place than they at present enjoy.

In nothing does the aphorism, that "what is worth doing is worth doing well," apply with greater force than to the cultivation of Heaths. In point of fact, to obtain a good specimen both skill and attention are indispensable; not, indeed, that the difficulties are so great as to prevent any one with moderate attainments and the ordinary appliances of a greenhouse surmounting them, or that any more care is wanted than what must be taken to produce a creditable Zonale Pelargonium; but that in order to have a good specimen Heath, high culture is absolutely necessary. In speaking of a specimen, I may remark that I mean a handsome bushy plant, furnished with vigorous healthful shoots full of leaves from the pot upwards, and not the miserable starved-looking anatomies we have too often the misfortune to see, even on exhibition-tables, with naked lank branches, the top shoots attenuated and weakly, the leaves sickly and yellow, and the whole plant impaled with such a tremendous array of stakes, that the poor martyr nearly loses its identity, and the beholder is impressed with the idea that the plant is there to exhibit the symmetrical arrangement of the stakes, rather than the stakes being subservient to the requirements of the plant. Stakes are doubtless indispensable, and

in some of the varieties a goodly number is necessary; but the less they are seen the better for the plant, both as regards health and appearance.

In offering a few hints on the culture of Heaths, it is necessary to remark that, where it is at all possible, a house should be devoted to themselves, which should be span-roofed, well lighted, most efficiently ventilated, and so constructed that the plants can be kept near the glass. As in nine cases out of ten, however, such accommodation cannot be had, they should have a portion of the greenhouse allotted to them separate from the general collection, or at least among such hard-wooded plants as require similar treatment. The proper soil is pure peat, with the addition of more or less sand, according to the quality of the peat, whether naturally sandy or otherwise. The best for the purpose is obtained from hillsides or dry moors, and from spots where the wild Heath is found growing luxuriantly, and without being associated with grass or reeds, cutting the turf or sod about 4 inches deep, choosing the winter season for the purpose, as the worms are then below the top spit for protection from frost. The turfs should be chopped up with the spade and thoroughly dried before using. As a general rule, from the beginning to the middle of May is the best season for shifting; and in this operation it should be borne in mind that the hard-wooded sorts, such as *Massoni*, *Aristata*, and *Tricolor*, are found naturally growing in dry situations, in a soil largely composed of the debris of coarse sandstone rocks; while the soft-wooded, such as *Hyemalis*, *Colorans*, and *Linnæoides*, are for the most part found in damper situations, with less sand among the soil. In potting, therefore, the hard-wooded sorts should not only have more drainage, but a larger allowance of sand, than such as are soft-wooded and more robust in their habits.

All the kinds delight in charcoal, and small pieces incorporated with the soil and among the crocks will be found beneficial; the roots penetrate it freely, and it has the effect of absorbing any superabundance of moisture.

Thorough drainage is of the utmost importance, and from $1\frac{1}{2}$ to 3 inches of crocks should be allowed, according to the size of the pot and the kind of plant, placing a layer of rough fibry peat over them.

In potting, the ball should not be buried deeper than to allow a very thin sprinkling of fresh soil over the surface, and the soil pressed firmly round the sides. If the soil is thoroughly dry, it can scarcely be too firm. Nothing is more fatal to Heaths than loose potting; the water is absorbed by the soft peat, the old ball gradually loses its moisture, and the plant soon becomes unhealthy. An essential condition to the successful culture of Cape Heaths is careful watering.

No plant is more impatient of either excessive drought or moisture. Over-watering soon shows its effects by the foliage getting discoloured and dropping off, the result of the soured soil gradually rotting the roots; while a thorough parching is almost always fatal; and even when the plant does survive, it is seldom that any after-treatment will compensate for the shock it sustains. The safest will be the medium, giving water copiously during the growing season, and that only when it is seen to be wanted, and gradually reducing the allowance as winter advances, at which season special care must be exercised.

Early in June they may be placed out of doors in a sheltered situation, and, where it is possible, plunged to the brims of the pots in sand or ashes, taking care that complete provision is made against worms, which are very troublesome, deranging the drainage and perforating the balls, so that it is impossible to do them proper justice in watering.

In hot summer weather, whether in the greenhouse or out of doors, they should be syringed overhead night and morning, before and after the sun. In autumn and winter, and even in long-continued wet or dull weather in summer, all the sorts are liable to mildew; and whenever the faintest symptom of this enemy is perceived, no time should be lost in applying the sulphur puff, before which it will rapidly disappear; and even though it should not be noticed, a very gentle dusting occasionally in the course of the winter will prevent, which, in this case, is emphatically better than cure. Many fine specimens are ruined by the neglect of this simple precaution; and mildew is so insidious, that very often its work is done before its presence is detected.

Immediately after the bloom is past they may be pruned or pinched, so as to keep the specimens in shape. All the sorts require this to be done regularly, and some of the soft-wooded, such as *Hyemalis*, are much the better of being well cut in.

In arranging the plants in the greenhouse, each should have sufficient space to allow the light and air to penetrate all round them. Air should be admitted freely, except in very hard frost, and no more fire-heat should be given but what is absolutely necessary to keep the temperature just above the freezing-point. In point of fact, most Heaths will stand 3° or 4° of frost without apparent injury. I am convinced, however, that the safest course is to keep it out altogether.

I append a select list of fine varieties arranged according to their ordinary seasons of flowering:—

1. *Winter and Spring.*

Grandinosa autumnalis.
 Princeps carnea.
 Vernix coccinea.
 Gracilis Vernalis.
 Hyemalis.
 Sindryana.
 Colorans.

Milanthera.
 Lambertiana rosea.
 Wilmoreaana.
 Gracilis autumnalis.
 Regerminans.
 Spencerii.

2. *April to July.*

Massoni major.
 Parmentieriana rosea.
 Vestita coccinea.
 Ventricosa coccinea minor.
 Ventricosa coruscans.
 Æmula.
 Eximea.
 Victoria.
 Aristata major.
 Cavendishii.
 Orbata umbellata.
 Persoluta alba.
 Vestita alba.

Ventricosa grandiflora.
 Ventricosa globosa.
 Candolleana.
 Farrieana.
 Delecta.
 Hartnelli.
 Profusa.
 Shannoniana.
 Shannoniana Turnbullii.
 Ventricosa Bothwelliana alba.
 Ventricosa densa carnea.
 Devoniana.
 Inflata.

3. *Autumn.*

Aitonia Turnbullii.
 Eweriana superba.
 Verticillata major.
 Marnockiana.
 Ampullacea.
 Austiniana.
 Jasminiflora alba.

Cerinthoides coronata.
 Macnabbiana rosea.
 Mammosa pallida.
 Amabilis.
 Ampullacea carnea.
 Jasminiflora.
 Retorta major.



THE CARLISLE AND CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY will hold a special exhibition in September, in connection with the Agricultural Show which takes place in Carlisle.

We have received from Mr Meredith, of the Vineyard, Garston, near Liverpool, photographs of the splendid bunches of Grapes he last autumn had the honour of submitting to Her Majesty's inspection at Osborne. We may remark that Mr Meredith has invented a manure of special value for Vines, and that it is offered to the public through a Liverpool firm.

TABLE DECORATION.

THIS is a subject we have never seen touched in the 'Gardener.' There must be few gardeners who are not called on sometimes to add this to their list of duties. It is one of those which most effectually test the gardener's taste, ingenuity, and expertness in handling flowers, a sleight-of-hand which is a good deal the result of experience, but one of those things in which practice can never take the place of natural facility. Some men with infinite labour will send a whole bushel of flowers, leaves, and materials *hors de combat* with very unsatisfactory results, while another with a handful will produce a graceful effect with no particular effort.

The mode and materials for table decoration are endless, the former depending a good deal on the size of the table for the evening, the style and magnitude of the room, and accessories, such as chandeliers, the nature of the plate, and the style of the ornaments to be used for the time. For instance, combinations of groups of plants may have to be used, or a lighter style of arrangement with cut flowers, or both combined. Sometimes a massive style might be most effective, in which vases of fruit might be introduced in company with plants bearing fruit; in fact, the modes of arrangement which one's ingenuity might suggest are endless.

Much has been said in praise of the light and elegant flower-stands of Marsh for table decoration, and they are worthy of all praise in their way; but we cannot allow them a monopoly of style; vary the mode of filling them as one likes, even they will soon become monotonous. The choice of materials for this purpose is now almost inexhaustible. There is no lack of variety at all seasons of the year; almost all flowers can be worked in forming combinations; even the single blooms of the Hollyhock we have used with much effect in forming chains, wreaths, and fringes; but certain colours of flowers are much more effective than others with candle-light. Of plants those of a graceful habit or outline—for instance, the Pandanus and Chinese Primula—are the most useful. Stiff plants, such as Camellias or Azaleas, are seldom admissible. We have sometimes had the common Pine with ripe fruit worked into a design, but it is stiff and ungainly; the variegated variety, on account of its pretty stripes, is useful. Some things have long been stereotyped as table-plants, and are made to do duty everywhere and on all occasions—such as the various coloured Dracænas, Begonias, Marantas, and other things in the coloured way. They are like the old stock scarlet Geraniums in the flower-garden, which everybody has, and everybody must use, and which for this reason have long become stale. They, however, recommend themselves as

being showy, easily stuck in a vase and transported to the table; and lo! the table is decorated. Simple materials are, as a rule, the most useful; to stick a rare and expensive plant on the table, simply because it is new and rare, is not decoration. We sometimes see, at flower-shows, collections of hand and table bouquets for competition; the taste or no taste or motive of the various makers can usually be seen at a glance. Here is one crammed with some rare Orchids and the very newest Zonal Geraniums, and eked out with the newest arrivals from Mexico or the Brazils: the maker evidently thought the judges could not well get over *that*; but, after all, it is but a bundle of flowers. There is another of Rose-buds, Lily of the Valley, Lilac or Deutzia, and suchlike, but elegantly put together, and a bouquet. The judges of the one such will, according to a golden rule in judging, give the prize to the producer, not to the production; so it must be in the decoration of the table. Simple materials, skilfully arranged, producing an elegant whole, **are** much more likely to please the eye of taste, and through it reflect credit on the artist, than sticking on rare or valuable plants to concentrate the attention on their individual selves. We believe, however, that there are but few gardeners who will not pronounce table decoration a nuisance, especially in winter, if there be a run of it for a month or two on end, and a change in demand every night. The damage to plants and the waste of flowers are alone sufficient to disgust one, not to speak of time absorbed and the monopoly of thought; but the thing must be done, and therefore anticipated, and when extensive practice in this department, room and table decoration, is exercised, much hospital accommodation must also be provided.

Of the materials useful for the purpose we shall mention some things we grow in quantity, more especially for winter use. Foremost we may mention the various and best sorts of Chinese Primula, well grown and flowered in small pots; their forms and colours look beautiful with candle-light, and either cut or turned out of the pot, they will arrange with anything. Plants of all sizes of *Centaurea Ragusina* also work as well, and are always elegant in whatever combination—as can only be said of white; their outline is also graceful. Well-fruited plants of *Solanum capsicastrum* of various sizes, also the tall varieties of *S. pseudo-capsicum*, are most useful. Almost all sorts of Ferns are indispensable subjects, especially *Adiantums*, batches of which are easily grown of any size. In summer the fronds of the common Shield Fern and Lady Fern are difficult to supersede for many purposes—as, for instance, where a fringe is wanted round the edge of a vase or dish against the table-cloth. The common toothed Lycopod is ever in demand, and can be grown in small pots or shallow boxes; or, if convenient, meadows of it can be grown in the conser-

vatory, on the tops of Orange-tubs ; indeed, anywhere indoors. Epiphyllums of all shapes and sizes are also stock plants when in bloom, Standards, Pyramids, and Dwarfs, to adopt the language of the Rose catalogue ; Centradenias, some of the Acacias, young Palms and Cordylines, and various Dracænas, reds and greens, especially the narrow-leaved one of the latter. *Bambusa variegata* is very graceful for cutting, or as small plants, and easily grown. Creeping or trailing plants are indispensable for table decoration, for hanging round vases, high ornaments, trailing among branches of epergnes or chandeliers, or twining up the slender glass stems of the Marsh stands. Of these there are various *Passifloras*, especially the common one, *Tacsonias*, *Lygodium scandens*, the variegated Japanese Honeysuckle, the variegated *Cobea scandens*, sprays of miniature Ivy, all of which are easy of culture. Of fruit-bearing plants there are plenty of graceful habit, such as small Orange-trees, the various *Solanums*. Small plants of *Ardisia crenulata*, though stiff, are admissible on account of the brilliancy of their fruits. *Rivinas* are also useful in this section, and even the several varieties of *Capsicum* are enlisted in the service. In this section, however, the crowning plant is neat-grown Vines in pot trained in various ways ; but our favourite form is the umbrella shape, on frames made for the purpose, in pairs of equal height, the umbrella covered with foliage, and a fringe of foliage spreading all round the edge, and some six small bunches more or less hanging down underneath. These plants may be any size, but small specimens from 2 to 3 feet in height in 9-inch pots are a useful size ; they may also be grown as bush or pyramids, and two or three years in the same pots with rich top-dressings. We have known a whole Vine cut from the rafter with the fruit hanging on it, and erected for the occasion down the middle of the table ; but this is a piece of extravagance not to be attempted except by desire on a very special occasion. We have also known an old unpruned Vine reserved for this purpose, the foliage and fruit tied on when wanted ; but this is a clumsy alternative which we do not recommend, having never tried the plan ; indeed, all deception, in whatever shape, is reprehensible. In the way of fruit for decoration, the old Queen Anne's Pocket Melon is very pretty. Many more things yet occur to our mind, and we might easily go over a fresh list, but those mentioned are simple, and within the reach of most people.

We would proceed to give some directions as to the mode of arrangement, which, however, is not such an easy matter, but shall endeavour in another paper to make a few general remarks about details. The shape and size of the table for the evening must be ascertained from our coadjutor, the butler ; also the number and

position of the articles of ornament, in plate or otherwise; also chandeliers, if not suspended; the number of the dishes of dessert must also be ascertained through our other friend and auxiliary, the house-keeper, and also their position. These primary points decided, we proceed to reconnoitre the position and form a plan in the mind's eye; the rest is detail and easy—that is, if the sleight-of-hand mentioned above is in command, without which we will not guarantee an elegant result.

THE SQUIRE'S GARDENER.



THE QUINCE STOCK.

MORE things than Pears are worked upon the Quince stock in these days. Precociousness is a feature which is not confined either to gardening or the vegetable kingdom. Rapidity of action is the characteristic of the present age. The world has been going on slow, but is now getting up steam, and concentrating its energies for the grand and final effort. The forces of creation seem as if they were converging to a focus, and rush on with accelerating speed, as if dragged forward by some gravitating influence that exerts an ever-increasing power. Every year the pace quickens. The momentum is communicated to everything, and pervades all branches of industry. Even the children seem to grow up sooner nowadays, and have a Quince-stock maturity about them, talk sense, and imitate their grandmothers before their teeth are well cut. Good old-world notions and customs are disappearing at an alarming rate, leaving in many cases but temporary substitutes behind them. Now and then, in some quiet English hamlet or rustic Scottish clachan, where picnics love to rendezvous and indulge the hereditary instincts of human nature, we light upon that old-world leisureliness and stability of purpose which characterised our progenitors before the age of railways and electric telegraphs. But even around these isolated spots the circle is gradually narrowing; and before their present inhabitants have gone to rest

“Where the rude forefathers of the hamlet sleep,”

the tide of progress will have swept over them, and borne away upon its rapid current the last vestiges of a former age.

To no profession or industry are these remarks more applicable than to gardening. The concentration of thought and action which has been brought to bear upon all questions relating to horticulture is now visible in the almost complete mastery which the gardener exercises over every kind of fruit and vegetable that comes under his care. Perhaps the most

noticeable progress we have made has been in the culture of fruit. In this department we have certainly divested ourselves of many cumbrous notions, and dispensed with even more cumbrous appliances. Ends are accomplished nowadays with a rapidity that would have astonished our ancestors. Many, with an interest in futurity—which is becoming strange amongst us—planted trees, and were content if they saw the first-fruits thereof, leaving them as a legacy to their descendants. And let us admit, that but for their foresight in this respect many a fruit-room in these days would show but a scant supply. Now, however, he who plants expects to reap. Gardens and orchards spring up contemporaneously with bricks and mortar; and when the wealthy retired man of business takes possession of his new mansion, he expects to find his garden furnished with trees bearing fruit after their kind, and the entire horticultural department in an already matured condition, and prepared to contribute to his comfort as regularly as his kitchen or dairy. This is all very gratifying, no doubt, and speaks for itself, and may be called gardening on the Donein and Quince principle; but however adapted to meet special ends, it lacks the elements of durability, and should not be pushed beyond its special province. We have a partiality for the old, luxuriantly-laden orchard, the feature of many a homestead, and chief source of supply in many an establishment. I always find that where there is a reserve of this kind the fruit-room is better filled. Quantity is always as important a consideration in a garden as quality, and it is comforting to have a supply to fall back upon after the limited produce of the orchard-house is exhausted. Miniature fruit-gardens and orchard-houses are undeniable realities, however, and commendable institutions; but, compared to the fail-me-never ancestral trees in the cottager's garden, they are what the thumb-pot Oaks of the Chinese are to their English congeners for the purposes of shipbuilding.

These remarks have been suggested by reading the very able and exhaustive papers of Mr M'Millan on the 'Cultivation of Hardy Fruits,' though they are not intended to apply to him. I see, however, that, like many others, he is impressed in favour of the Quince stock—whether from practical experience or not, he does not say; and if I understand him aright, he would only be guided by considerations of soil and climate in adopting it generally, in preference to the Pear, for standards or pyramids. I feel quite sure Mr M'Millan will excuse me for mentioning his name in connection with the subject, while a friendly discussion on the merits of the Quince will do no harm, I hope. We are experimenting on a limited scale with the Apple on the French Paradise stock, and may have something to say about it some other time;

but we have not tried the Quince for the Pear, nor—although we do not pretend to decide conclusively in the matter—would we like to plant extensively on it for general purposes under any circumstances, except in the orchard-house. I have seen it tried at different times and places, but in no case has the result ever been such as would encourage any one to use it in preference to the Pear, considering what can be accomplished with the latter under judicious cultivation. Some varieties will succeed on the Quince for a while ; but it is an acknowledged fact, that others will refuse to live on it, and that in a general way they are shortlived. The trees are also small, and the fruit limited in quantity, disadvantages which the slight superiority which it possesses in flavour does not compensate. It is true that Mr Robert Thompson speaks of trees which have flourished on the Quince stock for forty years—but this seems to have been an exceptional case, for he is cautious in recommending it, unless for special situations—while Dr Lindley discusses the subject only in a purely theoretical way. When in the west of Scotland, about two years ago, I called upon a gardener who had been led to plant a number of Pears worked on the Quince some years before, in the sanguine anticipation of being able to counteract the disadvantages of a dropping climate ; but the experiment had resulted in disappointment. Although the trees had the advantage of a wall and had every attention, they were not in a flourishing condition. Some of them seemed as if they were not long for this world ; and even the healthiest looked as if getting to the top of the wall was a feat never contemplated in their ambition. There has, I think, been ample time to test the merits of the Quince stock ; but I question if any favourable examples of its adaptability for general purposes could be found. Mr Powel of Frogmore, whose practical experience in fruit-tree culture entitles him to speak on the subject, says : “As far as my experience goes in this matter, I think the Pear worked on the Quince only fit for a very small garden, or for orchard-houses ; and it is evident only particular kinds will grow on the Quince for any length of time : others will scarcely exist, are unfit to bear fruit either in quantity or quality, and perish in the end. And if a uniform growth, fine fruit, and long-lived trees be sought for, it is better to use the Pear stock ; and by judicious root-pruning, miniature trees in a productive state may be obtained equally as well as on the Quince stock ; and for general purposes the Pear is to be preferred.” Seeing, therefore, that the advantages of the Quince are, to say the least, doubtful, and considering that equally satisfactory and more lasting results can be obtained by using the Pear, and the mortification of seeing your trees drop off one by one, just when they are “come of age,” avoided, would it be advisable to recommend it?

Most assuredly the roots of the Pear stock will penetrate deeply into the subsoil if allowed, as we have had experience, and results will be canker, cracking, and other evils; but this is simply a question of attention and labour, without which, it is admitted, we cannot succeed with the Quince. It is surprising how, by pinching and regular root-pruning, trees on the Pear stock can be dwarfed. In the end a kind of balance between the roots and branches is obtained, and there is little difficulty afterwards in keeping them in that condition, while a skilful use of the pruning-knife is all that is required to keep the trees in form.

Some years ago we found a lot of young pyramid Pear-trees here, about ten or a dozen years of age, that had run riot with their roots in the deep loamy subsoil beneath, and were making growths every year from 3 to 5 feet in length. One-half of them we root-pruned on one side only; the others we did all round, chopping the long, bare, fibrous roots through about 4 feet from the stem, and cutting a tongue on them with the knife about every 9 inches. Those which had been half done showed very little appearance of having been meddled with the following season, saving a slight decrease in the vigour of the shoots on the side which had been root-pruned. The others of course sustained a severe check, and made nothing but leaves the following summer. Since then they have been once or twice root-pruned, or lifted altogether in making some rearrangements among the trees; and most of them have borne excellent fruit every year. Some varieties do not finish as well as could be desired, but the situation is high and cold, and unfavourable to Pears generally as standards.

By these means, and mulching with manure as much as we can afford, we keep the roots within a few inches of the surface; and when lifted, they are a mass of fibres, and more like the roots of a Box-tree than anything else. In this condition the trees are easily moved. Four men can lift a dozen of them in a short day with very little injury to the roots; and we have had excellent fruit off trees that had been transplanted the preceding winter. The trees in question are now covered with a perfect spray of flower-buds, which look, in their half-expanded condition, like a swarm of bees on the branches. We contrive, if possible, to lift about a third of the trees every autumn, and in this way we are always sure of a crop on some of them.

J. SIMPSON.



GESNERA CULTURE.

IF there is any one branch of his business that the gardener ought to pay more attention to than another, I think it should be the decoration of the various structures under his care during the dreary and dull months of gloomy winter; for this purpose, to those who have a store, I know nothing better adapted than the *Gesnera*. With the beautiful qualities of a foliage plant, it possesses also deservedly the character of a free bloomer. There is thus a twofold reason why it claims our attention; and well-grown plants, either large or small, will abundantly repay any attention they require at our hands to make them so. One of my late worthy employers, who, by the way, was passionately in love with especially such flowers as had real worth to recommend them, who was also a good bit of an artist, declared, after viewing it from all its view-points, admiring and readmiring its charms, "that *Gesnera refulgens* is the handsomest thing I ever saw."

I do not by any means suppose that in my mode of culture there is anything particular or peculiar, but as I am under the impression that a good many young gardeners may be at a loss as to how they are to treat those things they may have this year for the first time under their care, it is for their benefit that I now pen my own mode of treatment. After the plants have done blooming, say in February, they will indicate a desire to go to rest, and no time should be lost in allowing them to do so, consistently with their being thoroughly ripened, which is a most material matter for the wellbeing of the plants during the following season, as half-ripened roots can never start again with the same vigour as thoroughly ripened ones do; and on the start they make much depends. Water must now be very sparingly given, at the same time not withholding it altogether at once, but giving it at long and then at longer intervals, until their tops are quite dead, when they may be cut down, and the pots turned over on their sides in a warm dry corner of the stove, where no water at all can by any accident reach them. There it is necessary they should remain to rest for at least a month or six weeks, or even longer, if they are not wanted very early for next year. There are some gardeners who, when their plants have done blooming, at once cut them over, and perhaps throw in below the stage or some other such place. Such treatment is far wrong, as the tubers are *not* ripe when their tops are done blooming, and therefore they ought to be carefully and prudently treated until they are perfectly ripe. I generally like to have an early and a late lot, and therefore start them at different periods, five or six weeks intervening. From the middle to the end of March I consider a good time for

starting the first lot, and for this I of course take those that have first gone to rest. Having prepared a suitable compost—that is, one part good turfy loam from the top spit of an old pasture, one-third leaf soil, one-third well-rotted cow-dung, and one-third rough peat, this latter to keep the whole nice and open, so that abundance of water can be given without souring the soil in any way—the next object is to get suitable pots, clean both outside and inside, and well crocked, to insure a free passage for the water. This, especially in the case of Gesneras, is a most essential matter, as they are very impatient of stagnant water or sour soil. The size of the pots must be entirely regulated and determined by the kind of specimens wanted; mine generally range from 4 to 10 inch pots, in which latter I have had specimens ranging from 2 to 3 feet through, which I found large enough when thickly studded with blooms, as I always get them under the above treatment. The pots being, as I have already directed, well crocked, are now filled with the said soil to about $2\frac{1}{2}$ inches of the brim, the roughest of the compost placed in the bottom of the pots. The pots containing the tubers are now brought to the potting bench, the dried ball taken out, carefully broken down, and every tuber cautiously removed. The greatest care must be taken not to injure the tubers in the operation, as they are extremely brittle and liable to injury. The tubers are then placed in the soil from 2 to 3 inches apart, the strongest in the centre: and in the case of the small pots one tuber will be found quite sufficient. The pots are then filled up with the compost to within 1 inch of the brim (thus leaving room for water), gently pressed, and plunged in a bottom-heat of about 85° , in which quarter they remain until about 4 high, when they are removed to a warm, dry, and light part of the stove near the glass. Until they are well sprung, and the pots getting filled with roots, the greatest care must be taken not to over-water; but afterwards, when they are growing well, water may with advantage be freely given, liquid manure added at least once a-week, and for this I prefer distilled sheep-dung, with the addition of a little guano. They must not even for once suffer through drought, as they never quite recover the check; and I have known it to be the cause of premature ripeness, going to rest without blooming at all. Each shoot must have a neat stake, to which it is periodically tied out as they grow. Their leaves are also easily injured by a rude touch, and so must be scrupulously guarded, as any injury done to the foliage of a plant materially affects not only its looks but also its vigour, thus injuring it in a twofold manner. They are thus treated until they begin to bloom, which, with the earlier ones, will likely be the end of October or early in November, when they must be transferred to

their blooming quarters, there during the dull dreary winter months to be a source of pleasure and gratification to him who has had the pleasing toil of growing them, and a source of admiration to all comers and goers. Where bottom-heat is limited in extent, they could profitably be thickly put into a seed-pan plunged in bottom-heat, and after they are sprung potted off as described above. Neither need those who have no bottom-heat despair, as they will come well on without it, but are vastly the better of it, as it insures a quick and much more vigorous start.

J. F.



ROYAL HORTICULTURAL SOCIETY'S SECOND SPRING SHOW.

THIS exhibition was held on the 17th of April, but was a very small affair; and, though held in the Conservatory, fully one-half of the plants were contributed in the form of miscellaneous collections. Azaleas were the chief feature of the show, and though it was the time when Azaleas would be plentiful enough, there was not a single group contributed in the class for nine varieties. With six varieties (amateurs), Mr George Wheeler, gardener to Sir F. H. Goldsmid, Bart., M.P., Regent's Park, was first, with by no means good specimens of Criterion, Holfordii, Etoile de Flandres, Prince of Wales, Glory of Sunninghill, and Stella, the last being finely bloomed. Second, Mr A. Wilkie, Addison Road, Kensington, with Burlingtonia, Petuniæflora, Fielderi, Marie Vervæne, Perfection, and Admiration. Mr George Fairbairn, the Gardens, Lion House, Isleworth, was third. In the nurseryman's class for six kinds, Mr C. Turner, Slough, was first with six half-standard plants, on stems about 2 feet in height, having almost circular heads of flowers so densely produced as to give the plants the appearance of floral mops. In the case of one or two, a few sprigs of foliage had managed to get to the fore, and gave a little relief to the somewhat formal heads of flower. The plants were said to have been imported from Belgium, and consisted of the following kinds:—Baronne de Pret, Rosea odorata, Souvenir de l'Exposition, Duc de Nassau, Etendard de Flandre, and a pale rosy purple flower with a name incapable of transcription or pronunciation by an ordinary mortal. Messrs Dobson & Son, Isleworth, were second with some sorry plants, exception being made in the case of a well-flowered Stella, with a single specimen Azalea. Mr Wilkie was first with Sir Charles Napier, and Mr C. Turner second with Marie Vervæne, also a standard plant.

It was too early for Herbaceous Calceolarias, though Mr James of

Isleworth sent half-a-dozen small plants of his fine strain, under name. Mr Wiggins was first with some very good plants of *Cyclamen Persicum*, having varicoloured and large heads of bloom, but getting past their best. Mr James was second, and Mr George Fairbairn third. It was noticeable that all the *Cyclamens* came from Isleworth, which place is just now the home of the fine kinds of recent introduction. Some *Cinerarias* were produced, the plants being of medium size and well bloomed. Messrs Dobson & Son were first with *Conqueror*, *Lord Elgin*, *Snowflake*, *Perfection*, *Candidate*, and *Lady Feodora Grosvenor*. The flowers were small, but the foregoing constituted a very good assortment. Mr James was second, having *Agrippa* and *Uncle Toby*, and some of the foregoing.

The display of show *Auriculas* was by no means extensive or good. Mr Turner was first with a collection of nine kinds, consisting of *Lovely Ann*, *Trafalgar*, and *General Neill*, green edged; *Colonel Champneys* (Turner), *Bright Phœbus*, *Competitor*, *Sophia*, and *Union*, grey edged; and *Countess of Dunmore*, white edged. No second prize was awarded, but Mr James was placed third with some poor plants. In the class for nine *Auriculas*, selfs and fancies, Mr Turner was again first with *Midnight*, *Prince Alfred*, *Eliza*, and *Metropolitan*, self flowers, and the following fancy or Alpine kinds: *Jessie*, *George*, *Lightbody*, *Tenniel*, *Millais*, and *Neatness*; all representing the improvement Mr Turner has made within the last few years in this fine class of flowers, that in point of attractiveness completely distance the show kinds. Mr James was second with the following self flowers: *Mr Sturrock*, *Meteor Flag*, *Royal Purple*, *Mrs Smith*, and *Negro*; and the following Alpines, *Conspicua*, *Dazzle*, *Mabel*, and *Landseer*.

Mr Thomas Ware, of Tottenham, contributed a select and very interesting collection of spring-flowering plants, among them a basket of *Trillium grandiflorum*, with its large and showy snow-white blossoms.



ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE annual spring exhibition of the above Society took place in the Music Hall, George Street, Edinburgh, on the 31st March. The morning of the day was frosty, and though a number of plants suffered injury on their way to the exhibition from this cause, the show was one of the best the Society ever had, both as regards the subjects exhibited and the attendance of visitors. *Rhododendrons* were exhibited in greater numbers and in far finer condition than we ever saw them in Scotland before. Forced *Roses* were also far above the average of previous years. *Azaleas* were well bloomed, but their training was far too formal;

they were like cones that had been turned in a lathe, and there was an excess of bloom, and too little foliage visible. The platform and orchestra were gorgeously filled by the splendid collections of Rhododendrons and Palms sent by Messrs Lawson, Mr Methven, and Dickson & Co. The Hyacinths we have seen more numerous, but never better. The collection of eighteen which took the first prize were especially excellent; these were exhibited by Mr Cowe, gardener, Luffness.

Forced Geraniums were fine for the season of the year. Fruit was represented by good Lady Downes Grapes from Balbirnie, splendid Pines from the Glen, and good examples of the same from Fordel, and Strawberries from Dalkeith. The vegetables in the winning stand were Asparagus, French Beans, Mushrooms, early Potatoes, Seakale, Rhubarb, Broccoli, and Brussels Sprouts.

The Edinburgh nurserymen, as usual, filled the side tables with collections of showy plants; Dickson & Sons sent Rhododendrons, forced Roses, Hyacinths, and foliage plants; Methven filled a table along the east side of the hall with similar plants, amongst which we noticed a very beautiful Hybrid Azalea named *Hybrida*. It is white, and resembles a Ghent Azalea, but has a much finer truss and larger blooms, the colour white. This will prove a very useful spring forcing plant.

Messrs Lawson sent a fine collection of Rhododendrons and foliage plants; Downie, Laird, and Laing a very interesting collection, amongst which we noticed the new Golden Coleus, and all the best varieties of the Tricolor Geraniums.

Drummond Brothers filled a table with showy spring flowers, amongst which were pots of exceedingly well-grown Lily of the Valley. Amongst cut blooms we must not omit to mention a collection of very fine Rhododendron-blooms from Dysart House, amongst which Mr Pirrie sent Broughtoniana, Jean Stern—this latter the finest truss of a Rhododendron we ever saw, the individual blooms of enormous size, white spotted, with dark spots in the throat—Prince Camille de Rohan, Alterclereuse, Cunninghami, and Elegans. Mr Pirrie also showed a number of trusses of a very showy pink seedling Rhododendron.

The Silver Cup given by Mr Mitchell, nurseryman, Hanover Street, for Azaleas, was won by Mr Marshall, gardener, Kingston Grange, with well-managed plants of *Lilium Flora*, *Empress Eugenie*, *Criterion*, and *Stanleyanum*. Mr Gordon of Niddrie showed larger plants equally well bloomed for this prize, but Mr Marshall's blooms were larger and the foliage better. Mr Gordon was, however, a good second.

The weak point of the Exhibition was a want of foliage plants and tree-ferns to take off the stiff appearance the over-trained and trimmed Azaleas and other formal plants gave the stages. There were many other subjects that deserve special notice, but the pressure on our space forbids it, and we must refer to the list of prizes for details.

The judges on the occasion were Messrs Thomson of Drumlanrig, Anderson of Oxenford, Lees of Tynninghame; Henderson, Cowden Castle; Gorrie, Raith; and Mackay of the Glen.

There was a dinner in the Albert Hotel at 3 o'clock, Professor Balfour in the chair, and Mr Keynes of Salisbury croupier. The following is the list of prizes awarded:—

Two Cape Heaths—John Currie, Salisbury Green.

Three Cinerarias—D. Marshall, Kingston Grange.

Four Greenhouse Plants—1. D. Marshall; 2. R. Colville, Carlton Lodge.

Four foliage plants—R. Colville.

Six Camellia Blooms—1. A. Robertson, Rockville; 2. R. Robertson, Sea Cot House, Leith.

Twelve Camellia Blooms (nurserymen)—J. Dickson & Sons.

Six Rhododendron Trusses—1. Mr Pirrie, Dysart; 2. Messrs Dickson & Co.

Hand Bouquet (nurserymen)—Mr Methven.

Hand Bouquet (gardeners)—1. Jas. Gordon, Niddrie; 2. R. Robertson.

Table Bouquet—1. T. Methven; 2. J. Jones, Bangholm Bower.

Three Pots Violets—1. D. Kerr, Glencorse; 2. D. Marshall, Kingston Grange.

Two Pots Mignonette—J. Joss, Morningside.

Four Pots Lily of the Valley—1. A. Anderson, Oxenford; 2. Jas. Gordon, Niddrie.

Three forced Roses—James Gordon.

Two Single Chinese Primulas—James Gordon.

Two early forcing Geraniums—1 and 2. John Jones.

One Pine-Apple—1. Mr Mackay, Glen; 2. Mr Foulis, Fordell.

Thirty Strawberries—W. Thomson, Dalkeith.

Two Bunches Grapes—1 and 2. W. Temple, Balbirnie.

Twelve Apples—1. T. Lees, Tynninghame; 2. Mr Anderson, Oxenford.

Twelve Pears—1. Mr Anderson; 2. Mr Temple.

Twelve stalks Rhubarb—1. John Fraser, Belmont; 2. Mr M'Lean, Inverkeithing.

Six Heads Seakale—1. James Gillon, Ormiston; 2. J. Fraser.

Three Broccoli—1. Mr Thomson, Dalkeith; 2. J. Gordon.

Six Leeks—1. J. Jones; 2. Thomas Fairley, Henderson Row.

One Pint Mushrooms—1. Mr Thomson, Dalkeith; 2. Mr Anderson.

Four Indian Azaleas (Special Prize)—1. D. Marshall, Kingston Grange; 2. James Gordon; 3. John Cowe, Luffness.

Eighteen Hyacinths (Nurserymen)—1. Messrs Dickson & Sons.

Eighteen Hyacinths (Gardeners)—1. Mr Cowe; 2. Mr Currie; 3. Mr Cowe.

Twelve Hyacinths—1. Mr Young; 2. Mr Paul, Gilmore Place.

Nine Hyacinths—1. William Laird, Kinnellan; 2. A. Glen, Rosehall; 3. A. Dougall, Beeslack.

Six Hyacinths—John Fraser, Belmont; 2. R. Colville, Carlton Lodge; 3. R. Robertson, Seacot.

Six Hyacinths (Amateurs)—W. Young; 2. Mr Paul; 3. Mr Campbell, Castle Street.

Six Hyacinths (Glasses—Ladies)—Miss Inglis, 14 Hill Street.

One Single Hyacinth—Mr Currie.

One Double Hyacinth—Mr Cowe.

Two Camellia Plants (Gardeners)—Mr Glen.

Six Ferns—1. Mr Currie; 2. Mr Colville.

Six Ferns (Nurserymen)—Messrs Downie, Laird, & Laing.

Four Pots Polyanthus Narcissus—1. Mr Currie; 2. Mr Jones.

Six Pots Tulips—1. Mr Marshall; 2. Mr Paul, Gilmore Place.

Six Rhododendrons—1. Mr Methven; 2. Dickson & Co.; 3. Mr Anderson.

Dark and Light Rhododendrons—Mr Laird.

Standard Azalea—1. Mr Currie; 2. Mr Gordon, Niddrie.

Two Azalea Indica—1. Mr Cowe; 2. Mr Marshall.

Three Azalea Indica—1. Mr Gordon; 2. Mr Marshall.

Two eight-inch Azalea Indica—1. Mr Jones; 2. Mr Cowe.

Two Deutzia gracilis—1. Mr Gordon; 2. Mr Marshall; 3. Mr Anderson.

Extra award for six Greenhouse and Stove Plants—Mr Currie.

Do.—Mr Henderson, Dunccliffe.

Mr Marshall, Kingston Grange, was awarded the Silver Cup for the best four Indian Azaleas.

Best Basket Vegetables—1. W. Thomson; 2. M. Temple.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.

THE spring show of this Society took place last week in the City Hall. The weather was propitious, and the exhibition was made up of some very choice materials, Dutch bulbs forming the staple. Never before in Glasgow were there so many good Hyaciuths shown; indeed, it is a matter of wonder, expressed even by the Dutch growers, how well the flowering properties of these bulbs are brought out by the gardeners of this country. In the open and nurserymen's classes Mr P. M'Kenzie carried off the palm with some very fine specimens; and from his collections were selected the first and second best Hyacinths in the exhibition. In the gardeners' classes there was much more excitement and considerably more rivalry, in some cases not fewer than twelve different lots competed for the awards. It is due to Mr N. Glass, gardener to Mr Bolton of Carbrook, Mr J. Sutherland, gardener to Mr Denny, Dumbarton, and Mr Mackay, gardener to Mr Reid, Rutherglen, to say that their respective lots were well grown, well selected, and well staged. When we come to individualise, we find the old sorts that took position ten years ago still prominent, beating many of the higher-priced rivals of modern introduction. There is nothing finer in whites than Alba maxima and Mont Blanc, unless it be Snowball, which lacks in strength of spike what it gains in substance and size of flower. Among deep reds, Koh-i-noor, Lord Macaulay, and Von Schiller stand out boldly among their fellows; and in the various shades of blue we have Maria, Charles Dickens, and Grand Lilas—all flowers that one sees in every winning stand, and such as ought to recommend themselves to all interested in the culture of Hyacinths. Curiously enough, the double-flowered sorts which the florist is anxious to encourage, and the botanist to discourage, cannot at all approach in point of excellence their single rivals, unless it be a blush called Duke of Wellington, and a blue one, looking like a Delphinium, called Garrick. Of the amateur class, which labours under difficulties, and even in the midst of city smoke triumphs in the cultivation of bulbs, Messrs Robertson, J. H. Sharpe, and Wilkie, all from the Hutchesontown district of the city, not only took prizes, but earned them meritoriously. The Tulips were quite marked plants, while the Narcissi and Croci were an exhibition of themselves. The king of the bulb race is the Brazilian Amaryllis, the tall scapes and large and prominent flowers of which invest these bulbs with no small importance. It was here but sparsely shown, the best lots coming from Messrs Fleming and Sutherland.

Among the miscellaneous hard-wooded plants, the Azaleas claimed paramount attention; but their great pyramids of colour would have been relieved by the arching fronds of Tree Ferns, or some of the choicer foliage plants that have beauty of foliage and outline to recommend them. The collections from Mr Boyd, gardener to Mr Finlay of Easterhill, and Mr R. Caskie, gardener to Mr A. Graham, Thornwood, were closely matched. Heaths, Epacris, and some of the choicer Orchids, were only indifferently contested for, the best plant of a purely bridal Orchid (*Coelogyne cristata*) being furnished by Mr Jas. Forbes, Beachwood. New Holland plants came very well handled, the Chorozeas, with their wreaths of showy orange and scarlet leguminous flowers, deservedly attracting notice, as did the catkin-like inflorescence of the various Acacias, which were numerous and well grown. Not the least decorative plant of easy culture, which any citizen with a greenhouse, however small, could manage, was the *Deutzia gracilis*. The flowers of this plant are sometimes mistaken for Orange blossoms, and they come

forth in such quantities as to delight all who tend them. Gardeners, however, are evidently erring in training the plants into shapes far too formal; even the first-prize lots had this fault. It was pleasing to turn from these to the Dielytras, which bear well the pressure of artificial heat, and remunerate the grower with a large crop of depending flower-stems. Camellia blooms and Camellia plants are always desirable to look at, and although there were not quantities of them, the flowers were conspicuous and good, particularly the cut blooms from Mr James Dalglish, gardener to Mr J. Alston, of Muirburn. The Rhododendrons and Roses were general favourites, but there was not a large exhibition of either of them. The best lots were good, and particularly the Gloire de Dijon Rose from Mr David Coghill. Many very excellent hand-bouquets were shown, and formed a most interesting feature. Some excellent Strawberries and Cucumbers came from Mr Methven, gardener to Colonel Campbell of Blythwood. Vases in earthenware, and representations of tree stumps in the same material, for Ferns and suchlike plants, came from J. & R. Howie, Kilmarnock. It is due to those in charge of the proceedings, as well as to the newly-appointed secretary, Mr F. G. Dougall, to remark that the first exhibition of the Society's 58th season passed off with great *éclat*. The Society's office-bearers met the judges and a few friends at dinner in the afternoon.—*Gardeners' Chronicle*.

[NOTE.—We failed to obtain a list of the prizes.—ED.]

GRAND INTERNATIONAL HORTICULTURAL EXHIBITION, to be held at HAMBURG from the 2d till the 12th of September next.

At the above Exhibition, prizes are offered for every conceivable article that is in the remotest degree connected with horticulture. We give the circular of the British Committee, any one of whom will be happy to give any information required. The latest date for entering subjects for exhibition is the 31st of July.

ENGLISH COMMITTEE.

Rev. M. J. Berkeley, *Chairman*.

Sir Wentworth Dilke, Bt., Sloane St.
Mr J. Fleming, Cliveden.
Mr J. Gibson, Battersea Park.
Mr A. Henderson, Wellington Road.
Dr R. Hogg, St George's Road.
Mr C. Lee, Hammersmith.
Mr T. Moore, Chelsea.
Mr T. Osborn, Fulham.
S. Rucker, Esq., Wandsworth.
Mr J. Smith, Kew.

Mr Tyler, Leadenhall Street.
Mr H. J. Veitch, Chelsea.
R. Warner, Esq., Chelmsford.

For Scotland.

Mr J. M'Nab, Edinburgh.
Mr W. Thomson, Dalkeith.

For Ireland.

Dr Moore, Glasnevin.

Mr George Eyles (Royal Horticultural Society's Gardens,
South Kensington,) *Secretary*.

The gentlemen above named having been appointed to form a Committee for Great Britain in connection with the Exhibition to be opened in Hamburg on the 2d day of *September* next, and being desirous of having this country well represented, invite your particular attention to the enclosed Schedule, and request your hearty co-operation as an Exhibitor.

The Committee hope to make arrangements for forwarding to Hamburg pack-

ages of fruit intended for exhibition, and the Hamburg Committee is making arrangements with the steamboat and railway companies for the conveyance of heavy articles.

Hamburg being an important German town, and easily reached by steamboat from England, the Committee hope you may consider this Exhibition worthy of your notice.

* * *Steamers leave London, Hull, and Leith direct for Hamburg.*



Notices to Correspondents.

W. H. C. B.—There is much truth in your paper, but we do not think its publication would do any good; and seeing you merely give your initials, you should not criticise others because they conceal their names.

The pages of this magazine at least are open to gardeners of all classes, subject to editorial discrimination as to their papers being such as are likely to serve the interests for which it is conducted, and you must see that this is absolutely necessary. You are too severe on those you criticise. We shall be glad to hear from you on some other subject.

Can any of our readers inform a correspondent through the pages of the 'Gardener' where he can procure *Colochortus venustus* and other species?

W. E., LIVERPOOL.—The thrip is a difficult insect to destroy. Fumigate your vines three nights in succession, and throw a little Cayenne pepper or a few capsicums amongst the tobacco when burning. On the fourth evening syringe the foliage of the vines well with clear tepid water. Had you Azaleas, Myrtles or some such plants that breed thrip, under your vines?

R., ABERDEEN.—The object in placing a little dry moss over the crocks at the bottom of pots is to keep the soil out of them, and by that means secure more perfect drainage. Thanks for the seeds. We do not know them, but will endeavour to germinate them. You should sow yours in a pot, and place it in a dung-frame: this will cause the seeds to vegetate, if anything will.

We have just received the balance-sheet of the "United Horticultural Benefit and Provident Society," and we are very much pleased to observe that there is a balance in the hands of the treasurer of £507, 14s. 6d. Any one desirous of procuring the rules of this society can do so through Mr Glendinning of the Chiswick Nursery, who is the treasurer; or of Mr Wm. Heale, 60 Margaret Street, Wilmington Square, W.C.



THE GARDENER.

JUNE 1869.



THE ROSE.

CHAPTER XI.—GARDEN ROSES.

(Continued from page 202.)



COMMENCED my selection of garden Roses—that is, of Roses which are beautiful upon the tree, but not the most suitable for exhibition—with the Provence and the Moss, because these were the Roses which I loved the first. They had but few contemporaries alike precious to our eyes and noses in the garden of my childhood;—the York and Lancaster, the Alba, the Damask, the Sweet Brier, the old Monthly; and these also shall suggest, if you please, our route through the land of Roses.

First, then, with reference to the York and Lancaster—thus called because it bears in impartial stripes the colours, red and white, of those royal rivals who fought the Wars of the Roses—although I cannot commend its flimsy flowers, as gaudily and as scantily draped as the queen of a ballet or burlesque, I must claim a place in the rosary for a few variegated Roses very superior to their prototype. *Œillet Parfait* is so truly named that a skilful florist, seeing a cut bloom of it for the first time, would only be convinced by a close inspection that it was not a Carnation but a Rose. With a clear and constant variegation of white and crimson stripes, it is marvellously like some beautiful *Bizarre*; and *Perle des Panachées*, white and rose, is almost as effective as another gay deceiver. *Œillet Flammande* and *Tricolor de Flandres*, though not so striking and distinct—their triple colours, white, lilac, and red, being somewhat dingy and confused—are always curious, and sometimes pleasing. These variegated Roses are easily cultivated,

growing freely on the Brier with liberal treatment and moderate pruning. They are affiliated in the catalogues to the family of Gallicas. But what are Gallicas?

"Gallica," responds the intelligent schoolboy, "is a Latin adjective, feminine gender, and signifying French." But can the intelligent schoolboy, or the still more intelligent adult, inform us why the Latin for French should be applied to this particular section only of the multitudinous Roses sent to us from France? "They who send," it may be answered, "make a special claim, for they call them 'Rosiers de Provins,' and Provins surely is in France, department Seine-et-Marne." Yes! but with every grateful recognition of the debt which we owe to French rosarians, it is well known that in this instance the claim cannot be proved. The birthplace of the Rose called Gallica is unknown, disputed, like the birthplace of Homer. "It is from Asia," says one; "it is the Rose of Miletus, mentioned by Pliny." "It was first found," writes a second, "upon Italian soil." "It came from Holland," cries Tertius, "beyond a doubt, and Van Eden was the man who introduced it."

But I have asked this question with an ulterior view. It is time, I think, for some alterations in the nomenclature and classification of the Rose. When summer Roses—Roses, that is, which bloom but once—were almost the only varieties grown, and when hybridisers found a splendid market for novelties in any quantities, new always, and distinct *in name*, the subdivisions yet remaining in our catalogues were interesting, no doubt, to our forefathers, and more intelligible, let us hope, than they are to us. Let us believe that it was patent to their shrewder sense why pink Roses were called Albas, and Roses whose hues were white and lemon were described as Damask. Let us suppose that they could distinguish at any distance the Gallica from the Provence Rose, and that when they heard the words Hybrid China, instead of being reminded, as I am, of a cross between a Cochin and a Dorking fowl, they recognised an infinity of distinctive attributes which estrange that variety from the Hybrid Bourbon in the most palpable and objective form. Though it may be difficult for us to understand why the *Persian* Yellow, brought to England from Persia by Sir H. Willock, should have been promptly described as an *Austrian* Brier—and we are a trifle perplexed to comprehend whence the latter, discovered first in Italy, derived its appellation—let us be sure that it was all plain, and clear as the light, to them.

But now that these summer Roses are no longer paramount—rapidly disappearing, on the contrary, before the superior and more enduring beauty of those varieties which bloom in summer and autumn too; now that several divisions formerly recognised are gone from the cata-

logues, and others include but two or three able-bodied Roses on their muster-roll—it would be advisable, I think, to ignore altogether these minor distinctions, and to classify as summer Roses all those which bloom but once. Not without a painful sigh can we older rosarians witness the removal of our old landmarks—not without a loyal sorrow do we say farewell to friends who have brightened our lives with so much gladness; but we cannot long remember our losses, surrounded as we are by such abundant gains, and the tears of memory must pass away as quickly as the dew in summer. We ring out the old with funeral bells; we ring in the new with a merry peal. Pensive upon our former favourites, and poring over ancient lists, we are as wanderers in some fair burial-ground, half garden and half graves (would that “God’s acre” were always so!), reading mournfully the names of the departed. Let us rejoice the rather to leave the shade of melancholy boughs for the sunlit ground, which is garden all of it, and let us return to the summer Roses, demanding and deserving admission.

The white and red Roses of my childhood have long left the garden in which they grew. I see the former sometimes by old farmhouses and in cottage plots, wildly vigorous as a gypsy’s hair, and covering huge bushes with its snowy flowers profusely, like a Guelder Rose, recalling the suggestion of the elder Pliny, that once upon a time the land we live in was named, after its white Roses, Albion—ob albas rosas.* But the latter, the Damask, with its few rich velvety-crimson petals, is a memory, and that is all. Nor do I ask a restoration in either case; only that they may be replaced by better Roses—the White by Blanchefleur, very pretty, although the *blanche* is decidedly a French white; by Madame Hardy, a true white, and a well-formed Rose, but, alas! “green-eyed,” like “jealousy”—envious, it may be, of Madame Zoutman, who, though not of such a clear complexion, is free from ocular infirmities; or, with more reason, of Princesse Clementine, before described (see p. 199) as one of our best white Roses; by Princesse de Lamballe, which most resembles the Alba of my boyhood, producing an abundance of Roses, distinct and pretty, but undersized; and by Triomphe de Bayeux, whose praise has been sung at p. 151, *supra*.

These white Roses are no candidates (though *candidatæ*) at our severe competitive examinations; but they are delightful members of our Rose community, beautiful in themselves, and enhancing greatly the beauty of others. We must not be fastidious because they are of medium size in some cases and not purely white in others, remem-

* “Albion insula sic dicta ab albis rupibus quas mare alluit, vel ob rosas albas, quibus abundat.”—Hist. Nat., iv. 16.

bering that their colours are still the most rare of all, and that their flowers are plenteous always. They are easily cultivated on the Brier, the Manetti, or their own roots.

In place of the dark crimson, which we called the Damask, Rose, the amateur is advised to substitute *Boule de Nanteuil*, *D'Aguesseau*, *Frederic II.*, *General Jacqueminot* (hybrid *China*), *Grandissima*, *Ohl*, *Paul Ricaut*, *Shakespeare*, and *Triomphe de Jaussens*. These are noble Roses, of healthful growth, fine foliage, and ample bloom. They make grand heads on standards of medium height, moderately pruned, and immoderately manured. It seems to me but a few summers since these were our finest show varieties, the belles of our Court balls; and now, seen in the zenith of their glory upon the trees, they are not to be surpassed in size or richness of colour, but they have not the vellers, becoming restless in hot summer nights, and throwing off their perfect symmetry of our more recent Roses, and they are but poor trapetals, as feverish dreamers their counterpane and blanket and sheet.

Intermediate between these light and dark varieties—neither blondes nor brunettes, *Minnas* nor *Brendas*—I commend for the general ornamentation of the Rosary, and from the summer Roses advertised in our lists, all the Pillar Roses described at p. 150, especially *Blairii 2*, *Charles Lawson*, *Coupe d'Hébé*, *Juno*, and *Paul Perras*. Low on bushes, high on poles, or midway on the brier, these Roses are alike effective, charming. To these I would add *La Ville de Bruxelles*, having bright pink flowers of a compact form, and so complete my selection of summer Roses for the general collection.

"Wait a moment," it may be said; "do you mean to tell us that such Roses as *Blairii 2* and *Charles Lawson* are only garden Roses, and not good enough for exhibition?" Yes, I do mean to tell you that it is with these Roses as with those which we discussed before them. If you could bring the British public to them, they would be rewarded with the highest distinctions, but the process of conveying them to the British public takes the exquisite freshness from *Charles Lawson's* beauty, and too often produces in the junior Miss Blair a transition from the blushing gracefulness of girlhood into the rubicund stoutness of middle age. Again and again, charmed by their loveliness overnight, I have given them a place in my boxes: as often I have been obliged to confess that the impulse of the evening did not satisfy the morning's reflection. On this subject I shall have more to say; meanwhile let us sniff

The Sweet-Brier; and let no rosarian lightly esteem this simple but gracious gift. "You are a magnificent swell," said a dingy little brown bird, by name *Philomela*, to a cock-pheasant strutting and crowing in the woods, "but your music is an awful failure." So may

the Sweet-Brier, with no flowers to speak of, remind many a gaudy neighbour that fine feathers do not constitute a perfect bird, and that men have other senses as well as that of sight to please. Not even among the Roses shall we find a more delicious perfume. The Thurifer wears a sombre cassock, but no sweeter incense rises heavenward.

In one of our most beautiful midland gardens there is a circular space hedged in, and filled exclusively with sweet-scented leaves and flowers. There grows the Eglantine and the Honeysuckle, the Gilliflower, the Clove, and Stock, Sweet Peas and Musk, Jasmine and Geranium, Verbena and Heliotrope—but the Eglantine to me, when I passed through “The Sweet Garden,” as it is called, just after a soft May shower, had the sweetest scent of them all. It is an idea very gracefully imagined and happily realised, but suggested by, and still suggesting, sorrowful sympathies, for the owner of that garden is blind.

The Austrian Brier is a Sweet-Brier also ; and though not so fragrant in its foliage as our own old favourite, it brings us, in the variety called Persian Yellow, a satisfactory recompense—namely, flowers of deepest, brightest yellow, prettily shaped, but small. This Rose is almost the earliest to tell us that summer is at hand, first by unfolding its sweet leaves, of a most vivid refreshing green, and then by its golden blooms. It grows well on the brier, but is preferable, when size is an object, on its own roots, from which it soon sends vigorous suckers, and so forms a large bush. In pruning, the amateur will do well to remember the warning—

“Ah me ! what perils do environ
The man who meddles with cold iron ;”

seeing that if he is too vivacious with his knife, he will inevitably destroy all hopes of bloom. Let him remove weakly wood altogether, and then only shorten by a few inches the more vigorous shoots.

We will pass now from garden Roses, which bloom but once, to those which are called Perpetual, “*biferique rosaria Pæsti*.” What a change in my garden since, forty years ago, the “old Monthly” and another member of the same family, but of a deep crimson complexion (Fabvier, most probably), were the only Roses of continuous bloom ! and now among 3000 trees not more than 30 are summer Roses. All the rest Perpetuals, or rather, for I must repeat it, called Perpetuals by courtesy, seeing that many of them score 0 in their second innings, and but few resume their former glory in autumn. They are, nevertheless, as superior for the most part in endurance as in quality to the summer Roses, and they supply an abundance of the most beautiful varieties both for the purpose now under consideration, the general ornamentation of the rosary, and for public exhibition.

Before we skim their cream as garden Roses, let us remember with admiration the ancestral cow. For who shall despise those old China Roses, which have brightened more than any other flower our English homes, smiling through our cold and sunless days like the brother born for adversity, and winning from the foreigner, as much perhaps as any of our graces, this frequent praise, "Your land is the garden of the world." The Frenchman, for example, as I can remember him in my boyhood, who had been travelling on the straight, flat, hedgeless, turfless roads of France, in a torpid, torrid, dusty diligence, was in an ecstasy as he sat upon the Dover mail, and went smoothly and cheerily, 10 miles per hour, through the meadows and the orchards, the hop-yards and the gardens of Kent. But nothing pleased him more than the prettiness of the wayside cottage, clothed with the Honeysuckle and the China Rose, and fragrant with Sweet-Brier, Wall-flower, Clove, and Stock.

I may not urge the restoration of this village beauty to the modern Rose-garden, but in the mixed garden and in the shrubbery the constant brave "old Monthly," the last to yield in winter, the first to bloom in spring, is still deserving of a place. He, at all events, is no more a rosarian who sees no beauty in this rose, than he a florist who does not love the meanest flower which grows. Nor must he neglect some other old favourites in this family—such as *Cramoisie Superieure*, honestly named, glowing and brilliant as any of our crimson Roses, and forming a charming bed, or edging of a bed, especially in the autumn—and *Mrs Bosanquet*, always fair, and good as beautiful, the same, like a true lady, in an exalted or a low estate, on a standard or on the ground, alone or in group, composed, graceful, not having one of its pale pink delicate petals out of place. Both of these Roses thrive well in pots, but they are most attractive, I think, on their own roots out of doors, in a bed of rich light mellow loam, pruned according to vigour of growth, and pegged down when their shoots are supple, so as to present an uniform surface.

When speaking of the Moss Rose generally, I anticipated the little which I had to say of the Moss Perpetual (p. 202), and, passing on to the Damask Perpetual, have but two Roses to commend, and these only where space is unlimited and the love of Roses voracious. A tender sadness comes to me thus speaking of them, a melancholy regret, as when one meets in mid-life some goddess of our early youth, and, out upon Time! she has no more figure than a lighthouse, and almost as much crimson in her glowing countenance as there is in its revolving light; and we are as surprised and disappointed as was Charles Kirkpatrick Sharpe when he met Mrs Siddons at Abbotsford, and "she ate boiled beef, and swilled porter, and took snuff, and

laughed till she made the whole room shake again." I do not mean that these Perpetual Damasks are too robust and ruddy, but that they charm us no more as when Mr Lee of Hammersmith introduced Rose du Roi to a delighted public, and the Comte, who presided over the gardens in which the Rose was raised at St Cloud, resigned his office in disgust because the flower was not named after himself, *Lelieur*. A most ungracious act, seeing that it was by the King's (Louis XVIII.) desire that the Rose had its royal title, and that the honour of originating the variety was due (no uncommon case) to Suchet the foreman, and not to Lelieur, the chef. Mogador, which was subsequently raised from Rose du Roi, was a decided improvement, and is still very effective in a bed, from its vivid crimson tints; but very few of those amateurs, who may pay me the compliment of furnishing their rosaries with the varieties which I commend the most, will, I think, have room, when I have completed my catalogue, for the Damask Perpetual Rose.

It can vie no more with that section, the most perfect and extensive of all, which we will next consider, so far as its garden Roses are concerned—viz., the Hybrid Perpetual. Two of our most fastidious rosarians, ejecting from a select list every flower which has not some special excellence, give us the names of 120 varieties as being *sans reproche*. "I have inserted in this list," says Mr Rivers, "Roses only, whether new or old, that are distinct, good, and, above all, free and healthy in their growth; the flowers are all of full size, fine shape, and perfection in colour; in short, any variety selected from it even at random will prove good and well worthy of cultivation." "Roses suitable for Exhibition" is the heading of Mr George Paul's list; and no exhibitor has proved so oft or so convincingly a knowledge of what to show, and how to show it. But I am anticipating this part of my subject, and, returning to our garden Roses, recommend the following selection: Anna Alexieff, Auguste Mie, Baronne Prévost, Caroline de Sansales, Duchesse de Cambacérès, Duchess of Norfolk, Duchess of Sutherland, Eugène Appert, General Jacqueminot, Oriflamme de St Louis, Souvenir de la Reine d'Angleterre, and Triomphe de l'Exposition, which have been already described as Pillar Roses (p. 147-49), and are equally praiseworthy upon the standard or the bush. Of these Baronne Prévost and General Jacqueminot make magnificent beds upon their own roots, and so does Géant des Batailles, who, though no longer, as I remember him, commander-in-chief, is still a handsome and efficient aide-de-camp. To these I must add Alphonse Damaizin, a rich deep-crimson Rose; Charles Margottin, bright carmine, *all but* an exhibition Rose; Anna de Diesbach, one of our largest, loveliest Roses, quite a necessity in every garden, and generally included among show Roses,

but somewhat too deficient in the number of its pink petals to endure the ordeal ; Duke of Edinburgh, a glorious flower, holding his own with any of the Jacqueminot tribe on the tree, but succumbing rapidly to heat ; Mademoiselle Bonnaire, very precious for its delicate colouring, white deepening to a central pink, and passing fair in the bud, but too small for the censor ; Madame Hector Jacquin, of exquisite form, its petals, silvery rose, overlapping each other with a regular and perfect grace, but not enduring much heat or locomotion ; Madame Knorr, an excellent and reliable tree-rose, bright pink, and prettily shaped, but soon losing its freshness ; and Triomphe de Paris, valuable as a very early bloomer, and a handsome purple crimson Rose.

Of the Bourbons, although two only now attain public honours, there are several which are valuable additions to a general collection of Roses. Acidalie is extremely pretty, nearly white, and blooming bountifully in a genial season, when other Roses are scarce, that is, in the later autumn. Although it grows vigorously both upon stocks and *per se*, when the soil and the summer are propitious, it is but a fine-weather sailor, and, "like that love which has nothing but beauty to keep it in good health, is short-lived, and apt to have ague-fits." I advise the amateur, consequently, to remember Acidalie in the budding season, so that he may always have a duplicate in reserve. Armosa is a charming little Rose, neat in form, and bright pink in complexion. Bouquet de Flore, an old favourite, still claims a place for its carmine flowers ; and Catherine Guillot, with Louise Odier, having both the beauty and the family likeness of Lawrence's "lovely sisters," are as two winsome maids-of-honour in waiting upon the Bourbon Queen—dethroned, it is true, by more potent rivals, but still asking our loyal love for its sweet, abundant, fawn-coloured flowers. The Rev. H. Dombrain, in the flesh, is a true rosarian, a trusty, genial writer, an accomplished florist, as all florists know ; and in the flower he is one of our best Bourbon Roses. Not so beautiful, of course, as his daughter, Marguerite Dombrain (of whom more anon), but an early, reliable, vigorous, bright carmine Rose. Were the Roses sentient, as I sometimes think they are, this one would have their special regard and honour. Mr Dombrain has been, as it were, the consul for French Roses in England, and more than any other man has made known the merits of the new-comers, and so insured for them a kindly welcome.

Of the Tea Roses, those which are hardy are suitable for exhibition, and none of them, except Gloire de Bourdeaux, which has more of the Noisette character, and which has been described at p. 148, can be considered as garden Roses. Madame Falcot and Safrano would be

valuable additions, but they only withstand our severest winters in southern or sheltered localities.

Of the Noisette, Jaune Desprez, Lamarque, and Solfaterre, have been selected as Climbing or Pillar Roses, and have been previously discussed. They are available as standards also, the best for that purpose being Solfaterre. I have found Narcisse to be hardy in all winters save that of 1860-1; and its lovely Roses, white, deepening to a Primrose centre, claim a place in every rosarium. The time will soon be here when Celine Forestier and Triomphe de Rennes will take their place, a high one, among garden Roses, but in our present scarcity of yellow flowers they are valuable as exhibition varieties.

And now, my reader, as when eating our strawberries in early youth, boys by their mothers', girls by their fathers' sides, we reserved the largest to the last; or as when, in later years, we loved something more dearly even than strawberries—making with the Yorkshire rustic our tender confession, “I loikes poi, Mary; but, oh Mary, I loikes you better nor poi”—we, meeting in mixed company, reserved for our beloved the final fond farewell, or meeting, not in mixed company, found *that* the sweetest which was, alas! the parting kiss; even so have I reserved for my conclusive chapter the Roses which I love the best—those Roses which are chosen for their more perfect beauty, like the fairest maidens at some public fête, to represent the sisterhood before a wondering world.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

THE APPLE.

(Continued from page 209.)

THE stocks to be used for grafting the Apple upon ought to be strong, vigorous, and healthy. They should be at least $1\frac{1}{2}$ inch or 2 inches in circumference, and those which are intended to be worked at standard height should at first be chosen from the seedling beds for their straight and strong habits of growth. They ought to be encouraged to grow erect by pinching the side shoots at every second and third eye, and by having their leaders trained in an upright direction to a stake. This is not necessary except in cases where the kinds to be worked are weak-growing and tender varieties, as the most of the varieties of the Apple will form standards if required, although grafted at 1 foot from the ground. In fact, I am not sure

if 4 to 6 inches is not a better height to graft at than higher, as the more exalted the seat of union is between the scion and stock, the more chances there are that they may be broken, either by working amongst them or from the violence of the wind. The union is but very slight for some considerable time, so that the more secure the position we select for them, the greater will be our chances of success. In the case of grafting at standard height, I would invariably recommend that the stem be made very secure to a strong stake, and as soon as the scion is long enough to be tied, let it also be made secure in a like manner. The stocks for the Apple ought to be treated in exactly the same way as recommended for the Pear, by root-pruning regularly every year except the one when the union is to be formed; and the reasons for this mode of procedure are exactly the same in both cases. In selecting a tree from which to obtain scions, let it be as healthy as possible, and free from canker; for although canker is a disease which is most generally brought on by surrounding circumstances, yet, nevertheless, I believe it to be in a great measure hereditary, and that it will take the greatest amount of cultural skill to keep a tree healthy which has been grafted from an unhealthy parent.

Cut down the stocks when the tree is dormant to within 2 or 3 inches of where the union is to be effected, and obtain also the grafts about the same time. They may be tied in small bundles and put in by "the heels" into the soil, until the grafting season comes round, which, according to position and climate, will be from the middle of March till the middle of April. As in the Pear, so in the Apple—the stock ought to be slightly, if possible, in advance of the scion, when a better and quicker union is effected than if they were exactly in the same stage of growth. If a stock were in a dormant state, and had a scion considerably in advance of it inserted upon it, the result would be death to the graft before the energies of the stock were brought to bear thereupon.

Whip-grafting is the method in most general use for young Apple-trees; and as we have detailed the operation in speaking of the Pear, we need not here repeat it again.

In treating of the Pear, I quite inadvertently neglected to speak of "crown-grafting." This is a mode of grafting in very general use for renewing, or rather refurnishing, of Apple and Pear trees where the varieties upon the stock become unproductive, through the influence of climate or from some other cause, or where it may be desirable to introduce a better variety. The scions are to be obtained at the usual time, and the stock cut back to the desired height during the dormant season. As a rule, such old stocks will in all probability be earlier

ready for operating upon than the seedling plants. I would always be careful, however, not to spend time and trouble upon any old stock, unless I were sure that it was in a healthy condition about the roots. The same materials will be in demand at grafting-time as have been already recommended. Having all things ready, the operator takes his knife, and with it makes a slit longitudinally for 2 or 3 inches, after which he must gently raise the bark with the bone handle of a budding-knife—being as careful as possible not to hurt or lift the alburnum—until the opening be large enough to receive the scion. The scion is prepared in exactly the same way as for whip-grafting, except that no tongue is made thereupon; it is then introduced into the place ready for its reception; the bark of the stock is tied firmly down upon it with mat, clay or wax is applied, as in other grafting, a layer of moss is tied over the whole, and the operation is finished. According to the size of the stock will be the number of the grafts inserted. As a rule, one scion for every 3 inches in circumference of the stock will be found sufficient. Mr Thomson, in the 'Gardener's Assistant,' recommends that, the stock being circular, the scion ought to be cut with a cavity or hollow, so as neatly to fit into or upon the stock—his reason being, "so that its inner bark might be in immediate contact with the layer of cambium from which the bark of the stock was raised." This, no doubt, is an admirable suggestion where the stock operated upon is 2 or 3 inches in diameter; but where the stock is much larger than this, it will be quite unnecessary, as the part of a circle described in the small space used for grafting will be so small that a scion cut flat will fit well enough without any such operation.

It may also be as well to here describe the mode of budding in most general use for the Apple and Pear. It sometimes will happen that in young trees blanks will occur where it would be desirable to have a branch or form a spur. In such a case the best plan to adopt will be to insert a bud.

The best time to perform this operation is about the end of July or beginning of August, although it may also be performed in spring, when the flow of sap is such as will allow of the wood to freely part with the bark of the bud. At this time of the year the bud to be used will be taken from the former year's growth. We do not, however, consider this nearly such a good time as about midsummer or a little after, as buds inserted at that time do not start into growth soon enough to enable them to perfect their wood before the season of rest. By inserting it at the proper time in summer, it will remain dormant all winter, after having effected a union, and will be ready in spring to start into growth with the rest of the tree.

There are various modes of budding which will answer for this pur-

pose—viz., shield-budding, inverted \perp budding, and square shield-budding. The former of these we prefer, and consider the best, but either or all of them will answer the purpose well enough. Shield-budding is done something after this manner: take a sharp budding-knife, and where the bud is to be placed make a cut across the branch to the depth of the bark, from $\frac{1}{4}$ to $\frac{1}{2}$ an inch in length, according to the size of the bud. From the centre of this cut make another cut running at right angles with it, and from $1\frac{1}{2}$ to 2 inches long, according as it may be desired. Assuming this operation is being performed in summer, a nice plump bud of this year's growth is selected and cut from its parent branch, with a piece of wood adhering thereunto. When cut, the wood is gently raised and cast away, nothing being left but the bud and bark; and this, if the operation has been properly done, will much resemble a round-pointed steel pen. The bud should stand well up upon the bark, say one-third of its length from the top. The bud being ready, take the bone handle of the knife, and with it gently raise as much of the bark on either side of the longitudinal cut as will admit the bud. In this operation be careful not to hurt or destroy the alburnum, as much of the success of the operation depends upon this point. All things being ready, let the bud be gently introduced at the top of the \perp cut, and as gently and easily as possible brought down to the bed made for its repose. This done, take a broad soft piece of mat (not Cuba), and commence to bind up the bud upon the stock as tightly and firmly as possible. It must be borne in mind that unless the portion of bark right under the bud is brought into close contact with the alburnum, the operation will prove a failure. The binding ought to be commenced at the bottom of the bud and carried upwards, as by doing so there is not so much chance of it being rubbed about upon the alburnum; and further, it is easier to make a firm and secure binding of the bud than if tied downwards. It is a good practice to leave a portion of the leaf stem along with the bud, as it is from it we obtain the first tokens of success. If in the course of a few weeks it drops off of its own accord, it is a sign of success; if on the other hand it withers and becomes dry, it is a sure token of death in the bud. As soon as it drops, or shortly after, the ties should be examined, and if too tight, they ought to be re-tied more loosely. This may have to be done twice or thrice before the "rest" season, but in every case the mat should not be removed until the following spring, when the bud will push into growth.

Inarching is sometimes brought into requisition for the same purpose as I have recommended budding, and it has this advantage, that where a branch can be spared upon one part of a tree, and bent so as to be brought into contact with the trunk at the point where wanted, the

vacancy will be more speedily filled up in this manner. Cut with a sharp knife a portion of the bark, and a little way down into the alburnum, where it is intended to form a new branch. The cut so made must be as nearly as possible the size of the branch to be inarched. Take the latter and cut into it after the same manner, making the cut about the same size ; thereafter bring the face of the cuts into firm contact, and tie up with mat, the same as grafting. Clay may also be applied, which will facilitate the union. The best time to perform this operation is shortly after the rise of the sap. I never have performed this operation upon either Apples or Pears, but have done so with great success upon several other fruits, and I have every confidence that it is a good practice to fill up a blank speedily. For fuller information upon this point I refer the reader to Lindley's 'Theory of Horticulture,' p. 323.

JAMES M'MILLAN.

(*To be continued*).



NOTES ON HARDY HERBACEOUS PLANTS.

TRIENTALIS EUROPÆA.—This pretty little plant is a native of Britain and other countries of Europe, also of North America and Asia, always affecting the colder latitudes, or, if appearing in the warmer countries, it rises into the mountains. Old fir or other open moist woods are its favourite haunts. It is a solitary species, and the sole representative in the flora of Britain of the seventh class in the Linnæan system of botany ; but it is not a good seventh, the parts of the flowers being often found in fives. The whole plant rarely exceeds 6 inches high, with erect wiry stems bearing a few leaves whorl-fashion at the top, and from the centre of these spring the chaste and graceful star-like white or pale pink flowers with a small yellow eye. On rockwork it must be placed in such a position as that shade and moisture will be secured to it, and the soil it most delights in is open gritty leaf-mould, or very sandy peat and light loam. It does not succeed cultivated in the ordinary exposed mixed border or bed, shade being very essential to its wellbeing ; but it is a most useful plant to introduce into moderately shady moist woods or banks, with a northern aspect, where the natural herbage is not too rank and overpowering. In all cases where the introduction of it is contemplated, the soil above named should be liberally allowed ; it well repays a little trouble in the first preparation for its reception. The flowers appear in cultivation usually in May or June, but in nature often a month later. Division is the best method of propagation.

Lysimachia.—This is a useful, showy, and free-flowering group of plants. For a small family there is considerable diversity of habit in the members comprised in it, but there is little variety of colour, yellow in various shades being the predominating hue. *L. nummularia* is one of the prettiest and most interesting. It is a dwarfy prostrate plant, throwing many branches out in all directions from the centre, which in moist situations root at the joints and so spread many feet. The flowers are yellow and appear in June, and last on till September and October if occasionally pinched in to induce fresh growth. It is useful for a variety of purposes—for clothing rock-work, moist banks, front lines in mixed beds and borders, and for festooning the margins of rustic vases where such ornaments may with propriety of taste be introduced into flower-gardens. Native of Britain and Europe generally. A variety with yellow leaves or yellow variegated leaves, recently introduced, is of considerable value, and will, when more generally known, become a favourite in the flower-garden of any style.

L. vulgaris, like the last-named species, is a native of Britain, and Europe generally, appearing also in many parts of Asia and in Australia. It rises erect to the height of 2 or 3 feet, with branching stems terminating in loose leafy panicles of yellow flowers, which appear in July, August, and September. It is not at all a choice-looking plant, but it is valuable for introducing into moist open woods, and for planting on the banks of ponds and streams where the natural vegetation stands in need of improvement, and for lighting up masses of shrubs. It succeeds in any common soil, but delights most in partially shady moist places.

L. punctata, by some considered as a rather well-marked variety of *L. vulgaris*, is for horticultural purposes not very distinct from that species. It is found in some parts of England and Scotland along with *L. vulgaris*, and in south-eastern Europe. The spotting implied in the specific name is not of much value.

L. thyrsiflora, native of Britain and other parts of Europe, of northern Asia and America. It is similar in aspect to the preceding species, but dwarfer, and with simple or unbranched erect stems. The flowers are yellow in rather dense racemes, and appear in June, July, and August. Useful for the same purposes as the preceding.

L. angustifolia, from North America, is a very graceful species, growing to the height of a foot or eighteen inches, with terminal leafy panicles of nodding pale yellow flowers. It is useful for the same purposes as the two preceding species, and is well worth a place in the mixed border. Like the others it delights in moisture, and is not fastidious as to the quality of the soil. The flowers appear in June and July.

L. ephemerum, from several parts of the south of Europe, is very distinct from either of the foregoing species. It grows about 2 feet high, with rather graceful habit, and the stems terminate in handsome racemes of white flowers. The corolla is rotate, with deeply-divided spreading lobes obovate in form. It flowers in July and August, and is most suitable for cultivating in the mixed border or the margins of shrubberies in good moist soil.



FRUIT-CULTURE.

THE GRAPE VINE.

(Continued from page 155.)

IN this paper we propose to point out a few of the errors into which amateur Grape-growers especially are prone to fall, though these errors are by no means confined to them. Prominent amongst these is over-cropping; this proceeds from a very natural desire to get the greatest weight of fruit possible from a given area, but it generally defeats the end aimed at.

We were once telegraphed for by a gentleman to come and advise him what could be done for his Grapes, as they were red and sour. When we arrived at the nearest railway station to his residence, the gardener met us, and in reply to an inquiry regarding the state of the Grapes, he said he believed the Vines were overcropped, but his employer would not allow him to take any of the bunches off. We met the proprietor near the garden, and we all three went into the vinery. We listened to the remarks he made about his Vines, which ran in the direction of blaming the gardener for "not giving heat enough, or air enough, or something of that sort." But what did we see? Why, two bunches on every lateral, on some three, the berries nearly all red, and sour as vinegar, with here and there a black one which was sweet. They were Black Hamburgs. We at once stated that the crop left on the Vines was three times more than they could bear, and that if a third of the quantity had been left on them the fruit would have been good. The proprietor had philosophical theories about nature guiding plants in the production of only such quantities of fruit as they are able to bring to maturity. We need scarcely add that the Vine is not the only plant that repudiates this doctrine, though it does it perhaps more evidently than any other, a notable example of which was the case here referred to. It is impossible to lay down an exact rule as to the number or weight of bunches that ought to be left on Vines

occupying a given area, so much depends on the vigour of the Vines, the state of the border, and the supplies of liquid manure that can with safety be given to the roots. As a general rule, one bunch on every alternate lateral is a sufficient crop. Those who grow Grapes for exhibition frequently reduce the bunches to half-a-dozen, and even a smaller number than that, to a 20-foot rod ; but this is a sacrifice made for a special purpose, and has no bearing on the question in hand.

We superintended the erection and planting of a couple of small vineries for an amateur neighbour some few years ago. In 1867 one of these houses, 30 feet long by 10 feet wide, had ninety-nine bunches of Grapes on it, none of them under 2 lb., many of them 4 lb. weight, thus giving a crop of at least 300 lb., or something like 1 lb. to the foot superficial of the glass roof. We protested that the Vines would be ruined, but they finished their crop well. Last year the crop was equally heavy, but they did not colour. This year the crop is very meagre, and the Vines show that they are thoroughly exhausted ; and we have no doubt it will take them a couple of years to recover their strength, if ever they do so, to their original point. We have given these examples as being better than precept—we could give many such.

Another and a very common error in Grape cultivation is the crowding of the wood and foliage. Many seem to prefer having three unripe and unfruitful laterals to one that would be certain to bear fruit.

We saw the most aggravated case of this description that ever came under our notice in Holland in 1861. We were anxious to see Dutch gardening as practised in one of the best private gardens of the country ; and, under the guidance of M. Van Velson of Haarlem, we made our way to one that had the reputation we required. There we found, amongst numerous other glass erections, a range of three well-built vineries ; the extreme ends of the range were built of brick, the roofs alone being of glass ; and so dense was the mass of foliage against the glass, that it was with difficulty we could see the few small bunches of Grapes that hung on long foot-stalks like the pendulums of Dutch clocks. They did not make up the fourth of the crop such houses ought to produce. The gardener—who, by the way, had on a clean white apron, as had all his assistants—asked us through M. Van Velson what we thought of his Vines. We replied that if they were under our care we should that afternoon cut out three-fourths of the wood, and spread the remainder out so as to expose its foliage properly to light and air. With a shrug of his shoulders he replied, “ And where would you get your fruit from next year ? ” We explained that

experience had taught us that one well-ripened rod is worth more, as far as the production of good fruit was concerned, than ten that are not. Judging from certain shrugs of the shoulders and grimaces, we rather suspect that our advice was not followed, and that the good Dutchman sticks to quantity, in preference to quality, still.

A third and very common error is the allowing all the bunches that set to hang on the Vines too long before they are thinned off, and too long a time to elapse before the berries are thinned in the bunches. The former is a great waste of the vital strength of the Vine. Therefore, as soon as the Grapes are set, reduce the bunches at once to the required number; then set about thinning the berries in the bunches, beginning with the Hamburgs and free setters first. Bunches can never be properly thinned when the berries are so large that the scissors can scarcely be got in amongst them without damaging those berries that are to form the bunches. As a rule, we believe the berries in the bunches are more frequently over than under thinned. Nothing looks worse than to see a bunch of Grapes much over-thinned, and its shoulders tied out with strings till it resembles nothing so much as some of Punch's caricatures of "the Russian eagle;" and when cut and laid on a dessert-dish, it would be a misnomer to call it a *bunch* of Grapes.

Still another error is that of allowing the Vines to make an excess of lateral growth beyond the bunches, till they present a tangled mass of growth, and then on a given day to set to work and cut away all this overgrowth at once, forgetting that by this means great injury must be done to the young roots of the Vine, and a shock given to its general system. The proper method is to pinch such laterals beyond the first leaf at least once a-week during the season of rapid growth.

W. THOMSON.



FLORIST FLOWERS.

Continued from page 188.

ANTIRRHINUMS.

Section I.—Beauty, Clipper, Carnation, Eclat, Harlequin, Hendersonii, Leopard, Petrel, Prince Alfred, Rob Roy, Striata perfecta, Stella.

Section II.—Beda, Cherub, Magii, Marquis, Mrs M'Donald, Nox, Royal Albert, Sunbeam, Spark, The Lady, The Prince, Victoria, War Eagle.

PENTSTEMONS.

Section I.—A. Smith, Candidate, George Sand, John Pow, Lady Hay, Lion, Laprevote, Mazeppa, Mons. Allison, Mutual, Regalia, Pauline Dinmont, Rev. J. H. Tait.

Section II.—Colin Bell, Dr Hogg, Eclat, James Forrest, John Paton, Leah, Pauline, Queen Victoria, Shirley Hibberd, The Emperor, Unique, William Thom.

FUCHSIAS.

Section I.—Brilliantissima, Blanchette, Day Dream, First of the Day, Father Ignatius, Light Heart, Lustre, Norfolk Giant, Killiecrankie, Nonpareil, Try me O, Bridesmaid, Madame Bront, Starlight.

Section II.—Blue Beauty, Conspicua, Her Majesty, Lord Palmerston, Roderick Dhu, La Favorita, Elegantissima, Troubadour, Sir C. T. Lindsay, Madame Carnelissen, Always Ready, King of Fuchsias.

PELARGONIUMS (stage).

Section I.—Achilles, Charles Turner, Decision, Purity, John Hoyle, Mary Hoyle, Progress, Royal Albert, Beauty of Windsor, The Rival, High Admiral, Archbishop.

Section II.—The Charmer, Clara, Constance, Kettledrum, Scarlet Nonpareil, Pulcheria, Vesuvius, Paris, Celeste, International, Startler, Royalty.

PELARGONIUMS (fancy).

Section I.—Amy Sedgwick, Fascination, Arabella Goddard, Clara Morello, Cloth of Silver, Ellen Beck, Louisa Payne, Madame Sainton Dolby, Mrs Reynolds Hole, Sarah Turner, Silver Mantle, Liberty.

Section II.—Anne Page, Beauty, Celestial, Countess Waldegrave, Godfrey, Lady Craven, Miss in her Teens, Mrs Ford, The Champion.

PELARGONIUMS (spotted).

Section I.—Diopanthus, King of the Belgians, Napoleon III., Spotted Gem, William Bull, Theophraste, Viceroy of Egypt.

Section II.—Landseer, Madame Furtado, Monitor, Peacock, Spotted Nonpareil, Virginie.

PELARGONIUMS (zonale).

Section I.—Comet, Eclat, Lord Derby, Jean Sisley, Julius Cæsar, John Williams, Countess of Rosslyn, Emmeline, Hon. G. Hardy, Nosegay, Floribunda.

Section II.—Countess of Caithness, Miss Edith, Beauty, Glow, Edith, Mrs Baird, Marksman, Duchess of Sutherland, Mrs Sanderson, Sultan.

PELARGONIUMS (variegated).

The following may be considered some of the best: Lucy Grieve, Lady Cul-lum, Sophie Dumaresque, Spanish Beauty, Mrs Dix, Miss Watson, Mrs Turner, Sophie Cossack, Queen of Tricolors, Jetty Lacy, Louisa Smith, Queen Victoria, Caroline Longfield.

PELARGONIUMS (gold and bronze).

Beauty of Calderdale, Duke of Edinburgh, Luminator, E. G. Henderson, Countess of Kellie, Egyptian Queen, Kentish Hero, Mrs John Todd.

VERBENAS.

Section I.—Anatoli Leroy, Crimson King, Fanny Martin, Interesting, J. C. Ward, John Wilson, James Birbeck, Lord Derby, Madame Tormellier, Shirley Hibberd, Sir George Musgrove, Coleshill.

Section II.—Blondin, Achievement, Fascination, James Day, King Charming, Lord Leigh, Mrs Holford, Princess of Wales, The Cure, Rosalind, Popular, Mrs Mole.

THE KITCHEN-GARDEN.

No. IV.

(Continued from page 122.)

CAULIFLOWER.

THE celebrated Dr Johnson used to say that of all the flowers in the garden the Cauliflower was the best. Perhaps among the many strong prejudices which had a place in the rugged but powerful mind of the author of 'Rasselas' there might be one against flowers, or at least in favour of the useful, as compared with the ornamental, in gardens. But setting aside the remark of the distinguished Doctor, there need be little fear of exciting opposing opinions by classing the Cauliflower among the most esteemed of vegetables. Of all the varieties of the Brassica genus it is the most wholesome and delicate ; for, unless it be some of the varieties of Broccoli, none of the others can approach it in this respect.

I am not acquainted with any data that fix the exact time of its introduction into this country. It was in cultivation in England in the early part of the seventeenth century, and though then inferior to our present varieties, it was only known as a dainty at the tables of the wealthy. It is said to have been first brought to this country from Cyprus, although there is little or no evidence to show that it is a native of that island. Towards the middle and end of the seventeenth century it was grown sufficiently extensively to allow its being offered regularly for sale in the English markets. Its price, however, ranged very high at the most plentiful season. Up to the time of the French Revolution the Cauliflower was regularly sent from England into Holland and some parts of Germany, and even France. English-grown Cauliflower is still considered superior to that of Continental growth, and the seed of it raised here is more esteemed by Continental gardeners than that of their own growing. This probably arises from the high state of cultivation and care in selection which is bestowed upon it in the neighbourhoods adjacent to London, where the great bulk of the finest seed is saved.

The earliest crop of the season is produced from seed sown the previous autumn. The good old rule, "sow and plant often," in order to keep up a regular supply in good condition, does not apply to any vegetable with greater propriety than to that now under consideration. It is well to start with a recognition of this rule by sowing twice instead of once in autumn. The first sowing should be made about the middle of August, and the second fourteen days later. In those localities where the checking frosts of autumn set in early, these times may perhaps be found late enough, while in other districts I have

found the last week of August quite early enough. It will depend entirely on the character of the season which of these two sowings may prove the most desirable from which to choose the main stock of plants for wintering in the best condition as to size and hardiness. Some seasons the earlier sowing may be found too large for wintering in frames, and in such cases the propriety of a second sowing becomes apparent.

Choice should be made of an open airy situation on which to sow the seed. The soil should if possible be moderately light, rich, and well pulverised. The seed should be sown thinly, so that the crop of young plants may not become crowded and weakly. If thick, and the season prove wet, mildew is very apt to destroy them. Should the weather and ground be dry, the seed should be steeped in water for twelve hours, and the ground well watered the night before it is sown. This secures a quick and healthy germination without resorting to the undesirable practice of watering the soil after the seed is sown. Many objections might be urged against watering seed-beds in hot dry weather, with the view of promoting germination and healthy growth. The action and reaction caused by such a practice in some cases destroys the seed altogether, and the surface of the soil gets consolidated and caked over. By soaking the seeds and bed before sowing, and then shading it from the hot sun, a healthy germination is promoted with very little trouble.

As has already been remarked, the earliest Cauliflowers of the next season are produced from these autumn sowings; and as soon as they are ready to transplant, a border with a due south and sheltered exposure should be got ready for them. As earliness is the chief object, the soil should not be heavy nor damp. A good dressing of thoroughly-rotted manure should be trenched or dug deeply into it, and every spadeful of the soil should be well pulverised. Hand-glasses should then be placed on the soil thus prepared at about 2 feet apart one way, and $2\frac{1}{2}$ feet the other. The most stocky and healthy plants that can be selected are planted five in each glass, one in each corner, and one in the centre. Although four or five plants is the number to be brought to maturity in these glasses, no harm results from putting a few more into each with the view of transplanting them in spring. This, where framing is scarce, is often practised. Care, however, must be taken that they do not get crowded, or injury to the whole will be the result, and the transplanting of the superfluous stock should be done before rapid growth commences. When planted and watered, the light should be put over them, but not closely, and a slight shading afforded for a few hours in the middle of the day if the weather be hot. After they take with the ground, it must be kept in mind that the more exposed

they are in autumn, while they continue to make growth, the better will be their condition to stand the winter, should it be severe, and come away bold and strong in spring; consequently the tops of the lights should be kept off, except to throw off heavy rains. When the winters are severe, they should be kept closely shut up while the frost continues, and should be screened from sudden bursts of sunshine. If severe frosts take place after the sun gains sufficient power to thaw them quickly, they are more likely to suffer from sudden alternations of temperature than from continued severe frost. Generally this is all the shelter found necessary for moderate-sized plants that have not been crowded, and rendered tender thereby. In mild weather slugs are the principal devourers that must be looked after and destroyed in the usual way. If the surface of the soil is covered with the siftings of burned earth or charcoal, it is good for the plants, and prevents slugs from harbouring so much. If more have been wintered in the hand-glasses than can be left to come to maturity, they should be removed by the middle of March. If the hand-glasses are of the largest sizes, one plant in each corner and one in the middle may be left, as nice compact early heads are required rather than large ones; but if the glasses are smaller, one in each corner is enough. The surface of the soil should then be well stirred, all dead leaves removed, and a slight earthing-up of a few inches of light rich soil applied. On fine days a free exposure to air must be followed out, shutting them up at night to prevent the soil from losing the heat absorbed by day. They soon make rapid progress, and April adds greatly to their size and strength, and they are generally far ahead of spring-transplanted crops. The glasses should be removed entirely as soon as the plants outgrow them. A top-dressing of well-rotted manure should then be laid over the surface of the ground among and around the plants, and over all a covering of soil. This moulds up the plants and keeps them steady. In performing this operation the corner plants should be pressed away from the centre, to further prevent them from becoming crowded. This moulding-up must be efficiently and firmly done, so that the plants do not get blown about and loosened at the neck by high winds, and a basin should be left all around them to hold manure-water. When from dry weather it becomes necessary to help them on with water, let it be a thorough soaking once a-week in preference to smaller quantities more frequently. A mulching should be applied after the first watering, and nothing is better for this than old hotbed manure.

In very cold damp situations it is advisable to pot up in October as many plants as are required for the desired number of glasses, in case, in the event of severe weather, they get crippled. In pots they can be

wintered in a cold pit or frame, and turned out into the glasses established plants, either to make up blanks or replace the whole stock. These will come away much earlier than transplanted plants, and in cold localities it is always advisable to have a few in pots to make up blanks in the glasses, if not for anything more important; for if the blanks are made up by transplanting, the plants so introduced do not keep pace with the established plants, and eventually get smothered, and of very little consequence.

Returning to the stock of young plants in the seed-beds, the next consideration is to take steps to winter a stock of plants for planting out in good condition in spring, to succeed those under hand-glasses. The means to this end are to a great extent regulated by the climate of different parts of the country. Some localities are so favoured with climate that the Cauliflower can be planted out in quarters like Cabbage, and generally stand the winter so managed. In others less mild it is necessary to prick them off under the shelter of a wall. In the majority of cases it is wise not to trust them without some more substantial means of protection, and it becomes necessary to put a quantity into temporary pits, with some means of covering them up in severe frost, and still better are they under glass in cold frames and pits. For this purpose the latest sowing recommended generally supplies the most suitable plants—the earliest being generally too large, and not in such a good condition to stand the winter, and are more likely to button in spring than less plants. The middle of October is a good time to transplant them into frames, which should stand dry and well exposed. Any moderately-rich soil, such as common light garden soil, answers very well. The most healthy, stubby, and short-necked plants must be chosen, and planted in rows 4 inches apart each way. They may stand wider if space be plentiful; certainly not closer if fine plants are to be produced.

All the autumn and winter they must be freely exposed to light and air in mild weather, by pulling off the lights every morning and tilting them well up at night. Rain must be kept from them on all occasions, as a superabundance of moisture makes them grow too much, and more liable to suffer from frost. All decaying leaves must be removed when they appear; the surface of the soil kept stirred, and if some charred soil is strewn amongst them, it keeps the surface of the soil from becoming slimy and caked. In dull damp weather, when it becomes necessary to cover them up from severe frosts, it must be borne in mind that they are more likely to be killed by a sudden thaw than by a smart bite of frost. Therefore they should be kept covered up from light after the surface of the soil and plants have become frozen, and not uncovered till they are completely thawed again; and then the

covering should be removed, and light and air admitted by degrees. Mice and slugs are the enemies that are to be guarded against, for if allowed their own way they soon spoil a lot of plants—the former by eating the hearts out of them, and the latter by eating the stems below the leaves.

Looking at these Cauliflower plants that have been wintered in frames in cold localities, the next consideration is how to manage them so that they shall succeed those in hand-glasses in a south border. If transplanted into the open borders or quarters in March they receive a considerable check, even when lifted with balls and carefully planted, and are likely to get checked severely by frosts and cutting winds before they get hold of the ground, so that the earliest of them has little chance of being ready by the time the latest under the glasses are cut. To gain the object in view I know of no better plan than that of potting them up out of the frames the first week of February, and establishing them in pots in kindly quarters under glass, for a time at least. In this way they receive a comparatively slight check, and fine strong plants can be turned out with good balls by the end of March. They are also better able to contend with sun and wind, and are much earlier than those transplanted from the frames without being potted.

Four-inch pots are large enough for the strongest plants, while the smallest may have a size less. The soil should be rich, such as old Melon-bed loam and well-rotted leaf-mould in equal proportions, with a slight sprinkling of fine bone-dust and sand. A single crock in each pot is enough. They should be potted firmly, and room left in the pot to hold plenty of water when they require it. In lifting the plants from the frame, the object should be more to get the roots as entire as possible than to preserve a ball of earth to them. None of them should be discarded on account of their being small if healthy, for the greater the variety in size, the longer and more regular the succession a given number of plants will afford. After being potted and well watered, they should be returned to the pit or frame and kept close for a time till they begin to take with the pots. Then they must be inured to full exposure, but always protected from frost, although in all other respects grown in a hard manner. By the end of March, or, should the weather be cold, the beginning of April, is soon enough to plant them out, unless in more favoured localities. The ground intended for them should be trenched and well manured with thoroughly-rotted dung. Some of the most forward plants should be planted in a border with a south exposure, on a rather light rich soil. Here they will succeed those in the glasses. The rest may be planted in the open quarters, where the earliest of them will follow up those in the early

border. In performing the operation of planting, circumstances must determine the exact way in which it is best performed. On heavy cold soils, upon which it is advisable to tread as little as possible after it is trenched, I have frequently left the trenching till the time of planting, and put the plants out as the trenching proceeded. Having a heap of light rich soil in readiness beforehand, a couple of spadefuls of it was put round the ball of each plant to give it a start. This may perhaps be considered a preferable way of doing the work on such soils, to that of first trenching the ground and then throwing out pits for the light soil, inasmuch as all treading of the ground is avoided. In free fine soils there is nothing necessary beyond setting the line and planting the plant-balls entire in the natural ground. They should always be planted at such a depth that the soil reaches up to the first leaves of the plants. Two feet by two is plenty of room for producing moderate-sized heads. If large ones for the hall be an object, some of them may be planted wider ; but for all practical purposes, 2 feet by 2 is enough.

In heavy soils, slugs are a great pest if the spring proves wet, and a few plants should be kept in reserve to make up blanks. Cinder-ashes, sand, and various other things which slugs do not relish, may be spread over the soil round each plant to help to check their work ; but to catch them and kill them is probably the best way of saving the plants.

Where the ground is exposed to the north and east, it is a good plan to stick in a stiff sprig or two of Evergreen on those sides of each plant, to protect them from cutting winds, which often prevail at that season. As they progress in growth they must be attended to by drawing a little soil to them, to keep them from becoming loose at the neck. And if dry, a good watering should be given before they are moulded up.

To make sure of succession, I have frequently planted some of these potted plants on a north border, and found them come in very handy, especially when the season proved hot and dry.

About the middle of February, a sowing should be made in heat to succeed the autumn-sown plants. The temperature should be from 55° to 60° till they come up, then they should be removed to a dry cold pit or frame and placed near to the glass, and when about 2 inches in height pricked off into rich soil in a cold frame. Here they are completely protected from any frost that may occur, but otherwise hardily reared. These make fine strong plants by May, ready to be planted out. They should be lifted with good balls, and carefully planted and attended to with water should the weather be dry, till they get a good hold of the soil. For summer plantations a good

holding well manured and worked loamy soil is the best; and in dry sandy soils it is most difficult to prevent a great bulk of the crops from buttoning if the season prove dry.

To succeed this sowing made in heat, I have usually found it desirable to make another under hand-glasses on a wall border about the middle of March, and afterwards at intervals of three weeks up to the middle of June. The plants should always be pricked out into beds of rich soil as soon as they can be conveniently handled, and before they become drawn in the seed-bed. They suffer less from the transplanting when young than if it be delayed till they form deeper tap-roots. From the time they are pricked out till they are established in the garden quarters, they must never be allowed to get a check for want of water, for if once they become "blue," there is little chance of their doing well afterwards. This frequent sowing and as frequent planting is the only way to be sure of keeping up a constant succession of nice heads fit to present in the dining-room. It is not necessary to make large plantations, except in the case of the last for the season, from which a winter supply is expected at least up to Christmas. The last should therefore be the largest of the plantings, as it comes in at a cool season, when the heads stand long in good condition, and can be stored away to keep in quantities.

The time for making the last sowing and planting will require always to be determined by the climate of different localities. Here the latest may be delayed till August, but in most places in Scotland it will require to be planted somewhat earlier. By the time the latest is consumed it is succeeded by that excellent variety of Broccoli known by the name of Snow's Winter Broccoli, easier known by name than by experience, although I always manage to get it true.

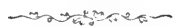
In light dry soils I have found it a good plan to make sure of good Cauliflower, in very dry seasons, to plant a few rows among rows of Pease kept rather wider apart than is common. The Pease afford shade to the plants, and I have seen them do well when they buttoned extensively in open quarters. The later, and particularly the latest, should always be in well-exposed situations. It is a practice in England to take two crops of Cauliflower from the same ground. When those planted in April in an open quarter are cut, which is generally by the 1st of July, I have frequently trenched or dug the ground and planted again, and had two good crops in the same place. The latest planting has generally succeeded the earliest sowing of French Beans and second early Potatoes.

In keeping up a constant supply of this vegetable, one of the most necessary auxiliaries is a cool, dry, dark cellar, with its floor, or part of it at least, covered 6 inches deep with moist sand. When Cauli-

flower comes in quicker than it can be used, it should be cut—when scarcely so big as is desired for table—with half a foot of the stem attached, the leaves cut off square with the surface of the flower, and then stuck into the sand in the cool dark place. In this way they keep crisp for weeks; and for saving the late crop when frost sets in, it is a plan much preferable to that of hanging them up in sheds with the leaves and stumps attached; and late in the season particularly, it is surprising how long they keep in good condition.

As to the best kinds of Cauliflower for different seasons, I think, if I had to confine myself to one sort, I would choose the Walcheren. For a summer variety probably the New Frogmore is preferable, inasmuch as it stands longer without opening or running than the Walcheren. These two, with the Early London, are the varieties I confine myself to. About fifteen or perhaps more years ago, there was a sort grown about London as Myatt's Cauliflower, which to my mind was the best I ever saw, but have not seen it true for a good many years.

D. THOMSON.



HINTS FOR AMATEURS.—JUNE.

THERE will be much to do in the vegetable garden this month in the way of planting out (for winter) the main crops of Kale, Broccoli, Brussels Sprouts, and Savoy; also succession crops of Lettuce, Cabbage, Spinach, and Turnips require frequent attention. Larger breadths of these may now be sown and planted, as there will be less likelihood of them running to seed, especially if the ground chosen is cool, and well prepared with manure. Good soakings of water are also necessary if the weather is dry. Surface sprinklings given frequently only disappoint: allow good soakings when it is given, and when the surface becomes dry, the hoe or steel fork should be freely used to prevent cracking. Liberal mulching, when it can be applied, will give sweet, crisp, and juicy produce. Before planting, let drills be drawn as for Pease, which will clear away the dry soil; and when the hoe is used afterwards (for cleaning as well as surface stirring), the closing in of the drills will act as an "earthing-up." Two feet apart between the plants, if the ground is good, will not be too much for strong kinds of Kale; and for Broccoli, $2\frac{1}{2}$ feet each way may be allowed. On poor sandy soil, 18 inches each way may be enough. When planting, let the roots (not the necks) be firmed moderately. Dipping in a puddle made with a little soot, red-lead, earth, and water, will in a great measure prevent the attack of grubs, &c. Vermin are so common in

old gardens that it is with difficulty plants can be preserved. A handful of soot and lime placed round the collars of each plant is a good old practice. Cabbage may be planted double the thickness they are intended to remain: every alternate one can be cut out as soon as fit for use. An early and a later kind, planted plant for plant, answers well for double cropping, as the early sort can be cut and used, leaving the late kind to monopolise the ground. Spinach (not to waste valuable ground) may be sown between any of the above-mentioned crops, or between rows of fruit-trees. New Zealand Spinach, grown on good soil, saves much trouble in keeping up successions of the round kind. A good breadth of Swedish Turnips sown towards the end of this month will be found valuable where sweet crisp Turnips are required all through the winter. It is well to sow two or three kinds at one time, as a good succession is thus easily kept up. Red and White Stone and Snowball are great favourites with us for sowing at this season. Young Carrots can be kept in succession all through the season. As formerly advised, fresh earth, free from manure, in some localities is almost indispensable for producing Carrots of any kind. Beet should be thinned, and the best of the thinnings transplanted if required. Onions (except those for pickling), Salsify, Parsnips, and all such plants, if they have been only partially thinned, should now be finished without delay: when they are allowed to become matted at the roots, they are greatly injured by it. Plant out Leeks in heavily-manured ground; make good-sized holes with the dibble, and let a little earth fall to the roots only. Shallow ridges generally give fine long blanched Leeks. They are extra feeders, therefore manure (solid and liquid) can hardly be given too liberally. Potatoes and Cauliflower require plenty of surface stirring with fork or hoe. The latter, if on poor ground, will be greatly improved by mulching, and a soaking or two of manure-water. Walcheren Broccoli may be sown with all safety in the south for a crop, but it is often chance work in the north so late in the season. Broad Beans may still be sown for a late crop if wanted: give mulching and water to those on light poor ground, and top them to induce podding. Pease require attention by staking in time: plenty of water may be necessary if weather is dry. Top those which may be growing rank, and if too many are coming in at once, topping will keep them back. We have seen the shears used for this purpose, but it does not look well for a time. To keep Pease in bearing, the pods should be taken off before they ripen, and mulch as formerly advised. Celery may now be planted for a main crop, giving plenty of manure and abundance of water at the roots: dryness soon stunts the growth, and if premature seeding does not take place, tough stems are certain.

Lettuce, sown in rows thinly on the tops of the ridges, is a suitable crop for such spaces. When fit to handle, they may be thinned to one foot apart. Imperial white Cos is still one of the best for summer crops. Lettuce, like most other kinds of vegetables, are difficult to get true.

Asparagus should not be cut too late in the season, which would weaken the roots considerably: dustings of salt will help them. French Beans and Scarlet Runners may be sown now for a full crop. Negroe's old dun-coloured are still favourites for late crops. Tulmer's and Sion House are also good. Newington Wonder, to be sown often and used quickly, is one of the best, the pods being small, round, and crisp: they come in great quantities at one time. Ridge Cucumbers may now be planted out, preparing beds of dung in the ground, throwing the soil right and left, then covering it over the ridge of manure nearly the thickness of a foot: a little light turfy soil starts the plants off into free growth. The stems should be trained regularly over the surface of the ridge, preventing them from becoming matted, pinching out the tops above the fruit. Similar treatment is required for Vegetable Marrows. They require less attention. Tomatoes plant out against walls to be trained where space occurs. If a number of the latest are kept in pots, they will be useful for taking in-doors when frost shows itself, though they do almost as well in the south, planted out like potatoes, as on walls, &c. The latter is a simple method of growing them, and space may be profitably occupied with them.

Strawberries may now be increased by pegging down the layers in small pots, to be grown on into larger pots, or planted out when sufficiently rooted. A little attention at the beginning will secure an early and vigorous growth, and fine fruiting plants will be prepared for bearing next season. Mulch, if not already done, the fruiting plants for this season. Clean straw is the best material for keeping the fruit clean, but few are ready to afford it for this purpose. We use the clean wasted straw from the stable-yard—when well washed by rains, it is little inferior to ordinary unused straw. Grass is used by some, but it brings with it endless crops of weeds, and is a harbour for slugs, &c. The thinning of fruit on walls may be proceeded with now with some degree of safety, but going several times over is much safer than doing it all at once. Among stone-fruits, the best-exposed and most vigorous-looking fruits should be left, and if spread regularly over the whole surface of the tree, so much the better; but where wood and foliage are strongest, the crop should be left thickest. Peaches left at the rate of 1 foot apart all over the trees (and much less on weakly ones) will be a good crop: 9 inches apart is enough for

Nectarines, and 6 inches for Plums. Though the latter are often left much closer, it is at the expense of flavour, colour, and size of fruit. Pears should also be thinned, as, when too heavy for the amount of foliage, gritty tasteless fruit only is produced. Thinning of shoots should be proceeded with gradually, stopping those (even if in their right position) which are taking the lead: every shoot coming out straight from the wall should be taken off. Syringe freely with water, and if insects of any kind attack the foliage, Hellebore powder and a little soft soap in the water will keep them in check. We have lately used Clarke's insect-destroyer (at the rate of 2 oz. to the gallon) with the best results on Peaches and Roses. It is a cleanly thing, and certain death to whatever insect it comes in contact with. If dry weather set in, fruit-trees which have been lately planted may require a soaking of water. Thinning judiciously the shoots of Currants and Gooseberries would not be labour lost when fine fruit is required.

Ranunculus in flower may be shaded, where a fine display of these pretty flowers is kept up. Annuals may be sown and planted out to keep up a succession of these. Thin those requiring it. Bulbs, such as Hyacinths, Narcissus, Tulips, &c. (which are often allowed to remain in the ground all the season), are the better of being taken up and kept in dry quarters till they are wanted. Keep Auriculas from rain, and allow them to remain shaded from strong sun till the blooming period is past. Decayed flowers and seed-pods, except when seed is wanted, should be kept picked off. Where seed is saved, it should only be taken from the best kinds, and all inferior flowers destroyed or kept from flowering near selected kinds. It is often from this cause that there is so much confusion with sorts, as they become crossed and entirely changed in character. Pinks, Carnations, &c., should now be tied up neatly. Many kinds of herbaceous plants may require reducing, though this should have been attended to when digging was going on: it would be better to do it yet, rather than let the plants smother themselves. Phloxes, Hollyhocks, Dahlias, newly planted out, and all similar plants requiring stakes, should have it done effectually at once. Roses, to keep them free from grubs and other pests, require to be looked over frequently: hand-picking is the only effectual method of keeping grubs from destroying the hearts of the flowers. They curl themselves up in the leaves near the buds, and feed away at pleasure. Budding of Roses may be performed as soon as the wood is fit, and buds can be secured. When the bark will readily peel off, the wood is in order. Cut off the bud with a leaf, and half an inch of bark, or more, very thinly. Cut a slit an inch long where the bud is to be placed, which should be as close to the stock as possible. Cut a cross, the slit forming a cross. With a budding-

knife raise the bark on both sides, place the bark of the bud in neatly under the bark of the stock, letting it fit properly. The leaf with the bud should fit exactly at the cross. Tie the bark of the stock down with soft matting. Damp moss may be kept over the wound for a time to help to heal up the union. Various kinds of Roses, which it may be desirable to increase, can be budded on inferior kinds, or weakly kinds on strong ones. All plants, such as Geraniums, Verbenas, Heliotropes, Fuchsias, Stocks, Asters, &c., planted out for decorating beds and borders, may require a good watering, should the weather prove very dry, but the operation cannot be looked upon as anything less than a necessary evil, and should only be done when the plants will not live without it. A good soaking to the whole bed or border will be the most effectual method of supplying the water, and follow up with the hoe, stirring every surface, which will act as a mulching. It does great injury to the soil to puddle in it with either hoe or rake when it is wet. Peg down any Verbenas, Petunias, or such plants as are liable to be injured by wind: a good old practice is to cut willows in short lengths, and bend them like hair-pins. They are sure pegs, and decay in the ground when done with. Beech pegs often do mischief by producing fungi in the soil. Plants in pots should be plunged when they are in exposed drying positions. Good waterings at the roots and overhead are necessary where plants are growing freely. Watering must never be done by halves, but if rain should come heavy, and continue for some time, the more tender things out of doors may be laid on their sides; but where the plants are in frames, and glass can be used for protection, much labour will be saved. Keep Cinerarias, Primulas, and similar plants, cool, and in rather a shady position: a frame turned to face the north answers well for these. Insects must be kept down by fumigating with tobacco. Pooley's tobacco-powder, dusted on the under sides of the leaves, acts severely on thrips and green-fly. Chrysanthemums must be stopped to keep the plants bushy. Shift the plants on into larger-sized pots when the roots reach the sides of those they are in. All plants, such as Heaths, Epacris, Cytisus, Acacias, and similar kinds, which have been cut back and are now growing freely, should be shifted on into larger pots if the roots have filled the soil they are in. Old soil can be reduced, and the plants replaced in pots of the same size if desirable. Sprinkle newly-potted plants overhead, and shade for a time.

M. T.



NEW PLANTS OF THE PAST MONTH.

At the meeting of the Floral Committee on the 20th of April, a very handsome and striking lot of *Amaryllis*, of the *Hippeastrum* group, were staged by Mr Baxter, gardener to C. Keizer, Esq. of Broxbourne. First-class certificates were awarded to the following: Madlle. Tietjens, having a white bar down each segment, with carmine-red on either side, passing off into carmine veins towards the edge; Olga, pale rosy red, with indistinct white central bar, and white edges; and Alexandra, bright carmine-red, with clear white edge, but wavy on the edges. One named Duke of Edinburgh, of a deep crimson hue, but somewhat narrow petaled, received a second-class certificate. There was a nice freshness and novelty about these flowers, and they were much admired, just as such glorious decorative plants deserve to be.

Of Orchids, the following have received first-class certificates: *Vanda Denisoniana*, with white flowers, tinted at the extremities with sulphur, a very distinct and handsome species, from Messrs Veitch & Sons. To a very fine spotted variety of *Odontoglossum Alexandræ*, which was named *Warneri*, after Mr Robert Warner, Chelmsford, by whom it was exhibited. It has the sepals stained with rose, and marked with a few bold bronzy spots; the petals broad, white, and fringed, and the tip yellow at the base, white at the tip, and barred across the middle with bronze. To *Miltonia Virginalis*, from Mr B. S. Williams, a pretty white-flowered species, with a rosy-striped lip. To a supposed new species of *Brassia*, but very handsome, and in the way of *B. Maculata*, from Messrs Veitch & Sons; and to flowering specimens of *Dendrobium Xanthophlebium* and *D. transparens*, both from Mr Sherratt, gardener to James Bateman, Esq., Biddulph Grange, Congleton.

Messrs Standish & Co., Bagshot, received a first-class certificate for *Struthiopteris Orientalis*, a very handsome half-hardy Japanese Fern, of bold and vigorous growth. Messrs Veitch & Sons also exhibited that lovely creeping basket Fern, *Davalia hemiptera*, obtained by them from Borneo some time since, and which had already been awarded a first-class certificate.

Messrs Standish & Co. also exhibited some promising and handsome seedling *Rhododendrons*, one of which, named Madlle. Christine Nilsson, white, the upper petals spotted with reddish brown, was very attractive; also a free-growing *Acer*, named *Japonicum variegatum*, thought to be one of the *platanoides* section, the leaves fringed, and blotched with white, but which was requested to be shown again; and two new double-flowering *Pelargoniums*—viz., Marie Lemoine, bright rose, and Wilhelm Pfitzer, brilliant scarlet, the flowers large and full.

Croton Wrigleyanum variegatum, a sport from *Croton variegatum*, was exhibited by Mr John Shaw, Manchester. The leaves have a central flame of cream, and bear a strong resemblance to one of Messrs Veitch & Sons' new kinds. As the plants were small, it was requested to be sent again. Both Messrs Veitch & Sons, as well as Mr Bull, have exhibited plants of *Achyranthes (Iresine) acuminatus*, evidently a sport from *Herbstii*, but with leaves more acuminate. It differs only in the form of the leaf, and there was observed on the part of a few leaves a tendency to revert to the old sharply-rounded form.

A small-growing but handsome Palm, named *Geonoma zamorensis*, from Mr W. Bull, received a first-class certificate—it promises to be a valuable decorative plant; and the same award was made to *Podocarpus Mika variegata*, a plant that is said to thrive in almost every garden in Japan, but a greenhouse plant in this country.

From Mr C. Noble, Bagshot, came a group of early-flowering Clematises adapted for spring blooming, and raised from a cross between *C. Standishi* and *C. Fortunei*, growing as nice blooming bushes in pots. First-class certificates were awarded to Albert Victor, delicate mauve, the flowers large, stout, and circular; and to Miss Bateman, a kind of silver-tinted flower, of very fine quality. There were several others, but in a state of immature development, and it was requested they should be seen again.

A first-class certificate was also awarded to Messrs Veitch & Sons for *Primula cortusoides amœna lilacina*, which was remarkable for its flatly-expanded, neatly-fringed segments, and soft pale lilac colour, the back of the flowers being of a deeper hue: it was a capital addition to these charming flowers. The same award was made to Mr Watson, Hammersmith, for a fine white early-forcing Pink, very pure in colour, the flowers large and full. It was named *Alba multiflora*. Mr C. Turner, of Slough, received the same award for *Azalea Madame Vander Cruyssen*, of a deep rosy pink hue, the flowers large and bold and freely produced, but somewhat rough on the edges. As the habit was extremely good, it promises to make a fine and telling exhibition flower. Mr Turner also received first-class certificates for two fine and bold alpine Auriculas named *Brunette* and *Constellation*, both having fine maroon crimson edges, the paste bright yellow. The same award was made to Mr J. Butcher, Camberwell, for *Auricula Mrs Butcher*, a fine grey-edged variety, of excellent properties.

A most interesting sport from *Coleus Blumei* was shown by Messrs Downie, Laird, & Laing, which, if it should prove robust, promises to become the progenitor of a new race of these valuable decorative plants. The leaves were of a pale whitish-green hue, and had the dark marking

peculiar to this species, but this was margined with bright carmine-red, something like the zone of a white-edged variegated Zonal Pelargonium. It is to be hoped that this remarkable sport may be preserved.

R. D.

THE MULBERRY.

A 'SUBSCRIBER' in the 'Gardener' for January (page 48) wishes for some information respecting the propagation of the Mulberry, and how to increase its fruit-bearing habits at any earlier age than usual. Perhaps the following observations on its culture may be of use to him and others who have had no experience in raising plants for the early fruiting of this very rich and desirable fruit for the dessert. When I first came to Welbeck in 1837, I was much struck with some large flower-pots perched on the tops of two standard Mulberry-trees, and imagined they were placed there for some species of birds to build their nests in. On asking the late Mr Mearns (who was my predecessor as gardener there), he informed me that the late Andrew Knight of Downton Castle always used to raise his fruiting-trees of Mulberries in that way. Mr Mearns likewise informed me that Mr Knight found out that, by propagating the Mulberry in the usual way, it required from twenty to thirty years' growth before it would fruit abundantly even in the south of England. I paid particular attention to these little Mulberry-bushes, and, when perfectly rooted, had two of them in a fruiting state for many years, by shifting them, and growing them in large tubs. Mr Mearns's trees were propagated by layering a small fruiting-branch into the pot, and the pot afterwards fastened with strong wire to a branch or stake to keep the wind from shaking it. I believe the best way to produce a large fruiting-bush of the Mulberry would be to have a large flower-pot made into two halves, and when the branch was put in at the hole in the bottom of the pot, the pot could then be bound together and fastened to a strong stake; the pot would then have to be filled with earth of a strong loamy nature, and some fresh moss placed on the top and pegged down to keep the wind from blowing it off. This moss would keep the soil moist, for watering would be required in the summer months in dry weather.

In the midland counties in England it is only in exceptionally warm summers, such as 1846, '65, and '68, that standard Mulberries produce fruit ripe enough to use. The two standard trees from which the pot bushes were raised were planted by the celebrated Speechley, and must have been about 110 years old when I first knew them. Another

tree of the same age was denuded of all its branches by Mr Mearns (except two at the top), and planted on a high south wall. He began training all the young branches downwards from the two leaders, and they soon got into a fruitful state, and produced fine fruit. No doubt a sunken pit where Asparagus was forced in helped this tree's growth, for its roots came close to the wall where the hot dung-linings were put in. In 1858, when the new gardens were made, I had this tree lifted with a machine, and planted in nearly a similar aspect, but without the advantage of its roots being heated in spring. Every year since it has never failed in bearing fine fruit, but in the past summer they were larger and finer than I ever remember to have seen Mulberry fruit even in the south of England. The tree covers a large space, and was worthy of being covered with Nottingham netting, which I had to do to save the fruit from birds, wasps, and flies.

WILLIAM TILLERY.



DIFFICULTIES.

A WORD TO YOUNG GARDENERS.

(Continued from page 129.)

It was with genuine heartfelt pleasure that I read the remarks made by our Editor in the March number of the 'Gardener' as to the education of young gardeners. I shall anxiously look forward to his promised opinion on that interesting subject, not because I am personally acquainted with him, but because I know him to be a gardener—using the latter word in its fullest sense—and his great experience will add additional weight to his ideas. I must again mention a few more of the young gardener's difficulties—I mean the hindrances that present themselves to those gardeners who work hard and study hard, who are earnestly striving to climb the "tree of knowledge," instead of being content to lounge round its base, and be elbowed and jostled by those ignorant loafers whose only aim in approaching it at all is to laugh derisively at the slips and failures of those who are engaged in ascending its slippery trunk. The road to knowledge may be likened to our attempting to climb a tall stately monarch of the forest. At the first onset we find it difficult to ascend, we have but few branches to assist us up its smooth sides, and what we have are extremely slender; but as with perseverance our store of knowledge increases, we find the simple facts we at first knew gradually expand or enlarge by becoming amalgamated with other nearly related facts, thus forming stronger branches, by the aid of which the climbing

of our typical tree is rendered more pleasant and comparatively easy to what it was when its stem was smooth and free from such friendly supporting aids. Then, again, as we press upwards we collect *new* facts, which help to fill up the spaces that exist between those already collected, thus lessening the distance—the intervening spaces that are so difficult to climb. It is easy to climb the smoothest tree when the trunk or bole is covered with branches on which to rest our feet or cling with our hands; so it is with us in obtaining knowledge: at the first onset it is difficult, but as our minds become stored with facts we find it simplified, until our intellectual powers gradually develop themselves; and when they have done so to a certain extent, we find it comparatively easy to proceed onwards.

One of the difficulties that under-gardeners have to contend with is the low wages which that class, as a general rule, obtain in return for their services. The author of this article, at fifteen years of age, started as “crock-boy” in a private garden with a salary of 6s. per week; out of this sum he paid 2s. per week to the head-gardener by way of premium, and 1s. per week for a bed. Some people object to a young man paying a premium, and will even venture to assert that a head-gardener has no right to take one from those under him. I must maintain that he has, providing that his employer allows him to do so, and he himself is *fully competent* to teach them the true principles of our noble calling; more than this, if every head-gardener were to insist upon a premium of 2s. or 3s. per week being paid to them, it would be at least one way—a very effectual one, I think—of obtaining only such young men into our gardens as have a real love for the profession, which, it must be owned, is sadly encumbered with come-day-go-day sort of fellows, who care nothing for either the science or practice of gardening. I am very much mistaken if many of these lethargic characters would consent to pay for instructions they do not require, or rather do not wish to be troubled with, even though they were to be had for nothing. I am perfectly well aware that to make a young man pay a weekly premium is to place a difficulty in his path; but, at the same time, if the gardener were competent to teach, and performed his duty in a straightforward and proper manner, the young man would eventually become convinced that after all it was a difficulty he had done well in surmounting. Again, if a gardener would endeavour to approach perfection in his calling, he must know something at least of the theoretical portion of it, notwithstanding that there are some who would have us believe—in fact, have attempted to prove—that the theory of horticulture is neither necessary nor useful to the young gardener. I, with due respect to their opinions, must contend that a

knowledge of speculative principles or theory is useful. The most illiterate horticulturist, the most ignorant of gardeners, daily employs it. Is it possible for a man to perform any common operation without speculating as to what results will be obtained thereby? If, then, he speculates at all as to the effect or effects to be produced by certain operations of which he himself is the primary cause, most assuredly that man employs theory; for are we not duly informed that theory is a speculative plan or scheme? Then, again, if a certain amount of theory is not essential, not useful, not of importance, how comes it that it is so commonly employed and advocated by some of the leading horticulturists of the present day? How is it that our examination papers are almost entirely made up of theoretical questions? The gardener who possesses a goodly store of demonstrative knowledge, coupled with practical skill, is certainly superior to the one that is content with mere habitual practice.

Because practical knowledge may to some extent exist alone, it does not immediately follow that such knowledge is superior to practical and scientific knowledge in a judicious state of combination.

The young gardener must learn his profession by precept as well as by mere habitual practice, or his difficulties, as I said before, will be many, and, moreover, of a kind and character not easy to be removed from his path. As the young man attempts to improve himself, he will continually meet with hindrances and difficulties; but by persevering industry they will be overcome sooner or later; and after conquering one difficult problem, he will find himself better able to master the next that presents itself. And after all this persevering study and application to practice, what will be our recompense? shall we obtain more wages than those who do not study at all? In all probability we shall not: the best man does not always, as a rule, succeed in obtaining the best situation; this statement applies more particularly to private establishments, for in some Government situations, when a vacancy occurs, an examination is held—in such cases as these a man reaps all the benefit of his youthful study.

It must be accepted as a general fact that every operation performed in a garden is to produce or to assist in producing some particular effect. I say *assist*, because, to obtain some ultimate results in horticulture (as in other sciences)—the production of a Pine-apple, for example—we must employ several different operative causes—such as proper soil, heat, moisture, light, and air—all of which are causes that must act in union, in harmonious union, before the end sought after is gained. Now, to thoroughly understand the particular parts performed by these various causes is not such an easy matter after all. Some considerable progress must have been made, many diffi-

culties trampled under our feet, before we are able to understand and explain correctly how each *particular* cause acts *individually*, and the whole *collectively*, in order to produce the desired result. Yet this is what every gardener should be able to do. If he in his practice does nothing more than imitate others more skilled than himself—imitate their actions, without comprehending the principles that govern them—if he does no more than this, he is not worthy of the name of gardener.

My advice to all young gardeners is, “Work and learn”—learn practice, and also those laws or principles that govern it, and that ought in every case to regulate it.

In my next I intend to give, for the benefit of young and aspiring gardeners, some information respecting gardeners’ examinations, and the “difficulties” to be contended with in order to obtain “certificates of merit.” Up to the present time but few have troubled to attend these emulating contests except from the public gardens near the metropolis.

F. W. B.



NAILS *VERSUS* STUDS.

It may not be inappropriate at the present season, when the subject is being treated of at length in the ‘Gardener,’ to make a few remarks on the materials in use for training wall-trees. This part of the subject which I have chosen may no doubt appear to many to be somewhat trivial, but nevertheless it is one which requires a little consideration, as it involves a question of time and labour, two things of which we cannot be too economical. On this very subject I have many a time wondered how many far-seeing men, who are often just hard enough pinched to make ends meet as regards labour, could waste several months in getting done with the training of their wall-fruit, when it might almost have been done in as many weeks. In many establishments, and more particularly in the southern portion of the kingdom, when the walls are being built, and while the mortar is yet soft, studs are pushed into it with the lines of brick, at perhaps a foot distant from each other, those in one line being alternate with those in the next, and so on. Two reasons are generally assigned for their use: first, as a preventive against harbouring insect-vermin about the trees; and again, as having a more tidy appearance than nails and shreds. I must confess that I am rather sceptical on both points, at least so far as experience has hitherto taught me to believe; and on comparison of the two systems, I should without hesitation give my vote in favour of the nails. In the first place, the studs put

in at first are always insufficient for their purpose, at least in training young or pliable wood. The branches must not be trained along the line of studs, or a likely consequence would be that the wood will get grown about them, if tied tightly ; and if tied loosely, they cannot be close to the wall, and the winds would be liable to throw them loose altogether. The ties being done with matting, are not to be depended on for bearing much strain the second year. As the branches are taken between the two rows of studs, therefore each tie is about 4 inches in length ; and if the piece of matting used be at all stout, it will in my opinion be more unsightly than a neat shred, which can be nailed close to the branch, and yet not be so tight as to cut into it during its growth. Stand a few yards in front of a wall done in this fashion, and from which a tree has just been taken ; extra studs have been put in from time to time, and of course these cannot be driven deep, not often one-third of their length ; well, there they are, each head of them three times the size of a nail-head. Then they cannot be drawn well. It is easy to give a nail a tap on the head, give a twist and draw it out ; but try a lot of studs in the same way, if you don't smash the eye you break it off short with the wall, or if you draw it, out comes half an inch or even more of the lime along with it. Sometimes you can draw, without much breakage, some of the extra-strong sorts, but these require no pointing out to show their unloveliness. On calculating the difference of the two pieces of metal, you will find that to do a tree properly, about thrice the time is required to do it with the studs ; and take into account the extra labour and cost, there will remain a pretty round balance in favour of the nail. Every nail can be drawn from a piece of blank wall, and come again into use ; with studs, the originals must remain while the wall lasts—a continual eyesore where not filled up—and of the rest the one-half will be useless by breakage. As for the harbouring of insects, I have never yet seen the difference, so I think that may go for nothing.

But on looking over, I find that I have said a great deal on a very *small subject*—not too much, however ; and I trust it may have the consideration of all gardeners, to whom time and labour are important objects.

R. S.



HORTICULTURAL EXHIBITIONS.

ROYAL BOTANIC SOCIETY, Regent's Park, April 27.—This was the second of the small spring shows, but so meagre was the tent room provided that a good many of the plants had to be placed in the conservatory, and visitors came upon them quite unexpectedly in nooks and corners, and quite away from other groups of a

like character. It was very hot, too—quite a foretaste of the summer; and the company were glad to get under the shade of the umbrageous trees, where the band discoursed sweet music.

Roses in pots were the chief feature, and they were very fine. Two splendid collections, of nine varieties each, were staged by Mr W. Paul, Waltham Cross, and Messrs Paul & Son, Cheshunt, and the awards were bestowed in the order of the names. The Tea Roses in each collection were specially fine. Mr Paul had *Senateur Vaisse*, *Glory of Waltham*, *John Hopper*, *Pierre Notting*, and *Baronne Adolphe de Rothschild*, *Hybrid Perpetuals*; *Paul Ricaut*, *Bourbon*; and *Souvenir d'Elise Varden*, *Madame de St Joseph*, and *Alba Rosea*, *Tea-scented*. Messrs Paul & Son had splendid examples of the following Tea Roses,—*Celine Forestier*, *President*, *Madame Willermoz*, *Souvenir d'un Ami*, *Souvenir d'Elise*, and *Madame Margottin*; and of *Hybrid Perpetuals*,—*Madame Therese Levet*, *Mademoiselle Marie Rady*, *Madame Victor Verdier*, and *Princess Mary of Cambridge*. Mr W. Paul was also first with three new varieties, having fine examples of *Antoine Ducher*, *Horace Vernet*, and *Monsieur Furtado*; Messrs Paul & Son being second with *Imperatrice Charlotte*, *Monsieur Furtado*, and *Madame Margottin*. There were also some plants from amateur growers, as well as cut blooms, but they did not call for any special notice.

Excepting Mr Turner's six plants of half-standard Azaleas, which were nearly identical with those shown at South Kensington, the others were very poor; but who would care to bring out good plants on such a day to compete for miserably small prizes? Mr Turner was placed first, and a third prize was awarded to some one. There was a much better competition with six foliage and flowering plants, and equal first prizes were awarded to Mr G. Fairbairn, The Gardens, Sion House, and to Mr G. Wheeler, gardener to Sir F. Goldsmid, Regent's Park. In Mr Fairbairn's collection were grand specimens of *Alocassia Zebrina* and *Anthurium acaule*; also examples of *Sobralia macrantha*, *Vanda tricolor*, and *Phalænopsis amabilis*. Mr Wheeler furnished an exceedingly well grown and well flowered specimen of *Chorozema cordatum splendens*, about 4 feet through; good examples of *Eriostemon linearifolius* and *Clerodendron Thomsonæ*; a fine *Dicksonia Antarctica*, and a rather poor *Alocassia metallica*. Mr D. Wright, gardener to C. H. C. Roberts, Esq., St John's Wood, and Mr A. Wilkie, The Gardens, Oak Lodge, Addison Road, Kensington, also exhibited.

There were also good exotic Ferns from several sources, a decent lot of French spotted *Pelargoniums* from Messrs Dobson & Son, and some Zonal varieties from Mr George Wheeler, trained like floricultural pancakes, without a trace of freedom or natural grace. From such absurdities may common-sense speedily deliver us!

Mr Baxter, gardener to C. Keizer, Esq., Broxbourne, sent six splendid *Amaryllis*, very rich and handsome, named respectively *Olga*, *Beauty of Broxbourne*, *Alexandra*, *Edmund Sibeth*, *Mrs Sibeth*, and *Othello*, quite new in character, and very novel. Mr James of Isleworth, and Mr Bragg of Slough, had *Pansies*, and the former had *Calceolarias* representing his own fine strain; Messrs Dobson & Son, and Reeves Brothers, of Notting Hill, had *Cinerarias* and *Lily of the Valley*.

The florist found much of special interest in the fine lot of *Auriculas* staged by Mr C. Turner. In point of massiveness, of rich colouring, and the most desired variation, the magnificent group of some fifty Alpine *Auriculas* from Mr Turner quite eclipsed the old show kinds, though among the last there were a few flowers of excellent quality. In the nurseryman's class for show *Auriculas*, Mr Turner, who was the only exhibitor, received the first prize for Colonel Champneys, Miss

Brightley, and Countess of Dunmore, edged flowers; and Constellation, Eclat, and Chieftain, belonging to the Alpine class. In the amateurs' class, Mr James of Isleworth was first with some flowers that were much past their best.

First-class certificates were awarded to Mr J. Butcher for Mrs Butcher, a very fine green-edged variety; and to Mr Turner for two very fine Alpine varieties named Constellation and Brunette. The same award was also made to Mr B. S. Williams for *Miltonia Virginalis*, a pretty white-flowered species, with a pretty rosy-striped lip. Baskets of new Variegated Pelargoniums were contributed by Messrs Carter & Co. that were quite a special feature, being varied in character, and very healthy and well coloured.

ROYAL HORTICULTURAL SOCIETY'S THIRD SPRING SHOW, May 8.—Roses were the main feature here, some capital plants being produced, small in size, bushy, and generally having an abundance of bloom. With nine kinds, Mr William Paul was first; Mr C. Turner, second; and Messrs Paul and Son, third. Some dissatisfaction has been expressed about the judgment in this class; but it does appear as if more complaints are made, whether rightly or wrongly, respecting the awards made to Roses, than to any other flower. It is to be regretted, as charges of unfairness or partiality on the part of the judges have an injurious effect on Exhibitions, and are apt to deter some from exhibiting. The best Roses were Maréchal Niel, very fine; Beauty of Waltham, grand; Charles Lawson, ditto; John Hopper, Madame Damaizin, in splendid condition; Souvenir d'un Ami, large and fine: these, with Cœur de Lion, Paul Ricaut, and Anna Alexieff, made up the first nine. Of these it is said by one who most freely criticises the judgment, that "the whole of the plants in this lot were well matched, the individual flowers being large in size, in combination with beautifully fresh foliage." In Mr Turner's group were Leopold Hausberg, a fine large globular rosy-pink variety; Celine Forestier, very fine; Marguerite de St Arnaud; Charles Lawson, with upwards of twenty expanded flowers, beautifully fresh; Dr Andry, and Souvenir d'un Ami, also very fine. Madame Margottin, Madame Eugene Appert, and Madame Victor Verdier, all very good, completed the group. With a single specimen, Mr Turner took the lead, having that fine old Tea Rose, Madame de St Joseph; Mr W. Paul came next with Le Rhone. Mr Turner was also first with twelve new kinds of 1867 or 1868, having Baronness A. de Rothschild, delicate peach, large and full, a lovely rose; Duchesse d'Aoste, deep rose; Clotilde Rolland, blush, with a deeper coloured centre, very full; President Willermoz, bright rose; and Miss Ingram, pale blush. These were the best. Among the others were La France, Madame Alice Dureau, Pitord, Souvenir de Francois Pousard, Marie Cirodde, and Reine du Midi, but all these were more or less rough, and the same remark holds good of several of these in Mr W. Paul's collection. The best of this group appeared to be Vicomtesse de Vezins, bright pink, with a salmon pink centre; Baronness A. de Rothschild, President Willermoz, Duchesse d'Aoste, and two of the new Tea Roses—Jean Pernet, yellow; and Reine du Portugal, yellow, shaded with copper. The amateurs' Roses were not worth a notice.

In addition there were groups of Roses in pots, and boxfuls of cut blooms, some of the last being very fine, especially Maréchal Niel, Madame Marie Cirodde, Belle de Bordeaux, Madame Pauline Labonte, Celine Forestier, Climbing Devonensis, and Gloire de Dijon.

Then there were Auriculas, generally the Alpine kinds; some Polyanthuses, Rhododendrons, Pansies in pots and cut blooms, Calceolarias, Tulips, &c., and, what is too seldom seen at flower-shows nowadays, Ranunculuses.

A very excellent feature was the collections of Alpine plants in six boxes, each one foot square. Mr Ware, of Hale Farm Nurseries, Tottenham, took the lead, exhibiting a numerous collection, of which the most beautiful were *Erinus hirsutus*, *Aubrietia Campbelli* and *Græca*, *Saxifraga granulata*, *Phlox stolonifera*, *Phlox subulata Nelsoni*, *Phlox subulata frondosa*, the intense blue *Lithospermum prostratum*, *Sempervivum arachnoideum*, *Chelidonium majus*, and *Phlox setacea*. The surface of the soil in these boxes was strewn with stones. Messrs Salter, who took the second prize, had the soil carpeted with *Mentha Corsica*, *Thymus serpyllum lanuginosus*, *Sedum glaucum*, *Saxifraga hypnoides minor*, *Acena Novæ Zealandiæ*, and *Arenaria Balearica*. The ground covering of these was neatly studded over with a variety of plants, such as the Aucuba-leaved Daisy, *Aubrietias*, *Saxifragas*, *Sempervivums*, *Sedums*, and *Lysimachia nemorum variegata*. Mr Ware also exhibited in the miscellaneous class a fine collection, for which he obtained a second prize, containing three beautiful basketfuls of *Phlox subulata frondosa*, and the same number of *Alyssum saxatile compactum*, together with hardy ornamental-leaved plants.

THE GRAND NATIONAL HORTICULTURAL EXHIBITION AT MANCHESTER, May 14 to 21.—This is now *the* great Horticultural Exhibition of the Midland districts, and its annual recurrence is looked forward to, not only as a great feast of Flora, but also as a gathering of the horticultural brotherhood; for they come to Manchester from all parts of the kingdom to clasp hands, and hold that intercourse so sweet and pleasant to those who in plants and flowers find

“Histories that stir the heart with deeper feeling.”

The ‘Manchester Examiner and Times’ thus sketched a general glance at the Exhibition:—“In general plan, the display was a repetition of the exhibitions of previous years, but it presents many peculiar and novel features which could not fail to interest the connoisseurs in plant-growing; while, for the sight-seeing multitude, the immense variety of subjects exhibited, and the many rich effects produced by judicious grouping, afforded abundant entertainment. The great tent—which we may call the landscape tent—was the principal attraction. It was so arranged as to present the semblance of a garden, though it would be simply impossible to render any garden covered only by the sky so gorgeous with colour, or so daintily furnished with elegant forms of vegetation. The substructure of the whole consists of grass banks and mounds, intersected with gravel walks. These banks and mounds were covered with plants of many kinds, the most conspicuous and attractive being the immense groups of pot Roses, Azaleas, and Pelargoniums, the intensely rich colours of which were subdued and harmonised by groups of Ferns, there being amongst the latter many Tree Ferns, which spread their ample leafage overhead, and compel admiration by their exquisite tracery and refreshing colours. In the conservatory or show-house, the choicer plants of tropical and sub-tropical regions were displayed; and here the plant-grower *par excellence* found, undoubtedly, much to delight him. The tent adjoining the exhibition-house is principally occupied with humbler subjects, but amongst these are many of the most select and popular of the tenants of the garden: on one hand, groups of the most beautiful Alpine flowers and hardy plants of the wood sides; on the other, the best of the tricolour-leaved Geraniums.

“The contest which, perhaps, most of all interested the *habitues* of flower-shows was that for the special prize of £50, offered by Mr B. S. Williams, of London, for the best group of fifty plants, which was supplemented by the

Society's offer of £25 for the second-best group. We must record our satisfaction that neither of these prizes have been carried off by exhibitors who might in any way be spoken of as strangers. The *genius loci* is propitiated; for Mr Baines, gardener to Mr H. Micholls, of Bowdon, takes the giant's share, doing a giant's work for it; and the second prize is awarded to Mr Dixon of Beverley. Mr Micholls's group of fifty plants well deserves the distinction of a first place in this great show."

This almost matchless group consisted of the following Azaleas: Coronata and Magnificent, both splendid indeed, the last named in a rich flower robe of radiant white, that glistened like chastened silver, as if

" From the seat of God
A ray upon its garments shone ;"

Stella, Empress Eugenie, Iveryana, and Stanleyana, Clerodendron Balfouri and C. Thomsonæ, Ixoras, Amboyensis, Aurantica, and Coccinea, the last very fine; Cyathea dealbata, C. Smithi, C. medularis, Dicksonias Antaretica, and Antaretica pendula; Sarracenias flava, Flava species, Purpurea, Drummondii alba, and a fine species unnamed. Verschaffeltii splendida and Stevensonia grandiflora, two splendid Palms. Ericas—Ventricosa coccinea minor, Tricolor Wilsoni, and Depressa. Epacrises—Eclipse, very fine, and Grandiflora; Alocassia metallica, Dipladenia crassanoda, Cattleya intermedia, Francisca confertiflora, Cordyline indivisa, Crotons angustifolium and variegatum, both very fine; Aphelaxis Sessamoides, and A. macrantha purpurea; Eriostemon nerifolium, finely flowered, and E. intermedium; Boronia pinnata, a splendid specimen, one of the most finished plants in the group; Acrophyllum venosum, Theophrasta imperialis, Rhopala corcovadense, and Dasylyrion acrostichum. Mr W. E. Dixon, Beverley, was second with a good group of plants, but much inferior to those staged by Mr Baines. Mr Sam Mendels's special prize of £20, for the best collection of ten Cape Heaths in flower, was won by Messrs E. Cole & Sons, Withington, Manchester, with a fine lot of plants, but not sufficiently advanced in bloom. The best kinds were Ampullacum obbata, Ventricosa magnifica, Massoni major, and Aristata superba. The special prize, given by Mr W. Cunliffe Brooks, for the best twelve Roses in flower, was won by Messrs Lane & Son, with large plants very well grown and flowered, but related too much to the past of Rose-showing rather than to the present. Mr B. S. Williams was first with the special prize given by C. F. Beyer, Esq., for eight Cycads; having two Cycads, three Zamias, two Encephalartos, and one Ceratozamia. The special prizes for a miscellaneous collection of bedding and hardy plants brought a capital collection from Messrs G. and W. Yates, Manchester, being in small square boxes, a good assortment comprising Pelargoniums of all kinds, Centaureas, Tropæolums, Petunias, variegated plants, &c. The hardy shrubs in flower were very poor, and the judges wisely withheld the first prize in consequence.

The Azaleas contributed by both amateur growers and nurserymen were a conspicuous feature of the show, the plants generally of large size, and well flowered, but some unnaturally formal in appearance. The kinds were identical with these generally seen grown as specimens. Pelargoniums were well done, excepting that the large flowering kinds contained too many of the older French kinds, besides not being sufficiently advanced in bloom. The Fancies were admirably grown, and had good heads of flower. The Zonal kinds were well done by Mr Fleming, gardener to R. Houghton, Esq., Liverpool, who had excellent plants of William Underwood, Cybister, Miss Parfitt, Amy Hogg, Eugene Mezard, Amelina Grisau, Softness, pale soft pink, and Alexandria.

Stove, greenhouse, ornamental-foliaged plants, and Palms were fine features, some of the latter doing good service in the way of affording relief to the gaily-coloured Azaleas, &c. Specially noticeable were *Goniophlebium subauriculatum* and *Gymnogramma Peruviana argyrophylla*, two very fine greenhouse Ferns; and an extremely well coloured specimen of *Hedera tulipifera*. There were also large collections of Conifera, of variegated Pelargoniums, some *Cinerarias*, &c., but nothing calling for special remark.

The Orchids contained some things of fine quality, as Manchester is a district where these grand plants are becoming extensively grown. There was a good contest in the class for ten Orchids in flower, the first prize going to Mr W. Swain, gardener to Thomas Jones, Esq., Whalley Range, Manchester, and the second to Dr Ainsworth, Lower Broughton. The best collection of sixteen plants, were not only well grown, but comprised some rare and valuable varieties. Particularly worthy of notice were the following: *Phalænopsis Luddemanniana*, with sixteen flowers expanded, and about as many more in bud; *Camarotis purpurea*, a pretty miniature fox-brush Orchid; *Cattleya Wagneri*, a sumptuous Mexican plant, with immense flowers of the purest white; a fine variety of the well-known and lovely *Cattleya Mossiæ*, called *Aurantiaca*, on account of the deep orange stain of the labellum; and *Dendrobium Devonianum*, the flowers of which are peculiarly like butterflies upon the wing. Dr Ainsworth has a beautiful group, comprising, amongst others, fine examples of *Trichopilia crispa*, nicely-finished lady-slipper Orchids, and the curious *Dendrobium Parishii*, the ugly leafless stems of which resemble slow-worms, save and except that they are clothed with lovely mauve-tinted flowers.

There were not many novelties shown, but the few were good. Messrs Veitch & Son had two new varieties of Crotons, the leaves of which are sumptuously variegated with bars and lines of the richest gold yellow. That one of the most virulent drugs should be yielded by such elegant plants is scarcely a singular circumstance, for a considerable proportion of the most beautiful members of the vegetable kingdom are pronounced in chemical qualities. But the consideration adds somewhat to the interest with which one views and criticises such plants as *Croton Hillii*, the leaves of which are richly painted with shades of bronze, and yellow, and red; or *Croton Wisemanni*, the narrow leaves of which have a central stripe of the clearest yellow, and more or less of transverse veins of the same colour. A new "flax-lily," named, after Bishop Colenso, *Phormium Colensoi*, will attract the attention of cultivators who value fine-foliaged plants that can be grown to perfection in cool greenhouses; and *Dracena Moorei* merits attention as a valuable addition to the useful class of plants adapted for table decoration, its large chocolate-coloured leaves having an agreeable appearance under gaslight.

FRUIT.

Of fruit the display was not extensive, but, with the exception of some of the Pines, it was of great excellence. The Black Hamburg Grapes from Lord Wharncliffe's and Lord Bagot's were all that could be desired. Mr Smith, gardener to Mr H. Walker, near Liverpool, showed a splendid fruit of the Black Prince Pine. There was but one collection of six sorts of fruit, which came from Lord Carrington's, and got the first prize. The following is the prize list, slightly abridged:—

SPECIAL PRIZES (OPEN TO ALL).

First prize presented by B. S. Williams, London; second, by the Manchester Botanical Society. For the	best and most effective group of fifty plants, not less than twenty-five flowering plants, and not more than eight
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Orchids in the twenty-five: 1st prize, £50; 2d prize, £25—1. H. L. Micholls, Bowden (gardener, Mr Baines); 2. Mr Dixon, Beverley.

First prize presented by Sam Mendel; second, Manchester Botanical Society. Ten Cape Heaths in flower, distinct: 1st prize, £20; 2d prize, £10—1. Messrs E. Cole & Sons; 2. Thomas Hopson.

First prize presented by William Cunliffe Brooks; second, Manchester Botanical Society. Twelve Roses in flower, distinct: 1st prize, £20—1. Messrs Lane & Sons, Birkhamstead.

First prize presented by C. F. Beyer; second, Manchester Botanical Society.

Eight Cycads, distinct—1. B. S. Williams, Holloway, London.

Miscellaneous Collection of Bedding and Hardy Plants—Messrs G. & W. Yates, Manchester.

Four Bunches of Grapes—1. Lord Bagot; 2. Bishop of Manchester; extra, W. W. Worswich.

Six Pine-Apples—1. H. Walker; 2. J. Wallace.

Twelve Hardy Shrubs in flower—1. Not awarded; 2. Messrs G. & W. Yates.

One Brace of Cucumbers—1. Thomas Statter, Stand; 2. John Cameron.

AMATEURS' PRIZES.

Sixteen Exotic Orchids in flower, distinct—1. Mr Thos. Jones; 2. Dr Ainsworth, Lower Broughton.

Eight Exotic Orchids in flower, distinct—1. J. H. Fernley; 2. W. C. Bird; 3. Thos. Jones.

One Exotic Orchid in flower—1. Mr G. Gottschalkes; 2. Dr Ainsworth.

Three Pots of *Lilium Auratum* in flower—1. Not awarded; 2. Mr T. Jones.

Ten Miscellaneous Plants, distinct—1. Mr Thos. Kendall; 2. Mr T. Hobson; 3. Mr S. Schloss.

Twelve Stove and Greenhouse Plants in flower, distinct—1. Sir James Watts; 2. Mr John Stevenson.

Six Stove and Greenhouse Plants in flower, distinct—1. Mr T. Kendal; 2. Mr Thos. Hobson.

One Stove Plant in flower—1. Mr S. Schloss; 2. Mr T. Hobson.

One Greenhouse Plant in flower—1. Not awarded; 2. Mr C. Rylance.

One Cape Heath in flower—1. Mr T. Hobson; 2. Mr G. E. Reynolds.

Ten Greenhouse Azaleas in flower, distinct—1. Mr L. Hanmer; 2. Sir J. Watts.

Six Greenhouse Azaleas in flower, distinct—1. Sir J. Watts; 2. Mr Hanmer.

One Greenhouse Azalea in flower—1. Mr T. Hobson; 2. Mr T. Kendal.

Eight Greenhouse Azaleas—1. Not awarded; 2. Mr W. Pearson; 3. Sir James Watts.

Eight Fine Foliaged Plants—1. Mr S. Schloss; 2. Mr John Stevenson; 3. Mr O. W. Wrigley and Mr T. H. Birley equal.

Four Palms—1. Mr Joseph Broome.

Eight Stove or Greenhouse Ferns—1. Mr T. Hobson; 2. Mr E. J. Wrigley.

Twelve Hardy Ferns—1. Mr W. Pearson; 2. Mr J. F. Rowbotham; 3. Mr John Wallace.

Six Show Pelargoniums in flower—1. Mr J. E. Reynolds, Mr A. G. Latham.

Six Fancy Pelargoniums, ditto—1. Mr R. Houghton.

Eight Zonal Pelargoniums, ditto—1. Mr R. Houghton; 2. Mr H. K. Balstone; 3. Mr F. Taylor.

Eight Variegated ditto—1. Mr H. K. Balstone; 2. Mr R. Voss; 3. Mr M. Torkington.

Six Roses in flower—1. Mr J. E. Reynolds.

Twelve Roses in flower—1. Mr J. H. Agnew.

Ten Cinerarias—1. Sir James Watts. Extra Prize—One Fern, Mr E. G. Wrigley.

NURSERYMEN'S PRIZES.

Ten Roses in flower, distinct—1. Messrs H. Lane and Sons; 2. and 3. not awarded; extra prize, Mr John Shaw, Manchester.

Thirty Roses in flower, distinct—1. Messrs H. Lane and Sons; no others awarded.

Ten Exotic Orchids in flower, dis-

tinct—1. Mr B. S. Williams; 2. Mr John Shaw; 3. Mr W. E. Dixon.

Ten Stove and Greenhouse Plants in flower, distinct—1. Mr B. S. Williams; 2. not awarded; 3. Mr John Shaw.

Eight Greenhouse Azaleas in flower, distinct—1. Mr E. Cole and Sons; 2. Mr B. S. Williams.

Twelve Greenhouse Azaleas in flower, distinct—1. Messrs H. Lane and Sons and Messrs E. Cole and Sons equal; 2. Mr B. S. Williams; 3. Mr J. Kellett.

Ten Show Pelargoniums in flower, distinct—1. and 3. not awarded; 2. Mr C. Rylance.

Ten Fancy Pelargoniums in flower, distinct—Mr C. Rylance.

Eight Zonal Pelargoniums in flower, distinct—1. Mr C. Rylance; 2. Messrs G. and W. Yates.

Eight Variegated Pelargoniums, distinct—1. Messrs G. and W. Yates; 2. Mr G. Watson.

Ten Fine-Foliaged Plants, distinct—1. Mr B. S. Williams; 2. Mr G. Shaw.

Twelve Miscellaneous Plants, distinct—1. Messrs J. Veitch and Sons, Chelsea; 2. Mr B. S. Williams; 3. Mr J. Shaw.

Twelve New and Rare Plants of any description, in or out of flower—1. Messrs J. Veitch and Sons; 2. Mr B. S. Williams; 3. Mr W. E. Dixon.

Twenty Hardy Conifers—1. Mr John

Shaw; 2. Messrs H. Lane & Sons; 3. Messrs G. and W. Yates.

One pair of Greenhouse Yuccas or Beaucarneas—1. Mr B. S. Williams; 2. Mr G. Shaw.

One pair Dracanas or Cordylines—1. Mr B. S. Williams; 2. Mr J. Shaw.

One pair Tree-Ferns—Mr B. S. Williams.

One pair Palms—1. Mr B. S. Williams; 2. Mr J. Shaw.

One pair Pyramidal Bay-Trees—1. Mr B. S. Williams; 2. Mr J. Shaw.

Twenty-four Hardy Ferns (species)—1. Mr R. Ashcroft; 2. Mr John Shaw.

Ten Amaryllis in flower—1. and 3. not awarded; 2. Mr John Shaw.

Fifty Hardy Alpine and Herbaceous Plants—1. Messrs G. and W. Yates; 2. Mr R. Ashcroft.

Twelve Hardy Rhododendrons in flower—1. Messrs H. Lane & Sons; 2. Mr John Shaw.

Twelve Hardy Azaleas in flower—1. Messrs H. Lane & Sons; 2. Mr John Shaw.

FRUITS (OPEN TO ALL CLASSES).

Miscellaneous Collection of Fruit—1. Lord Carrington; 2. and 3. not awarded.

Two Bunches Black Hamburg Grapes—1. Lord Wharnccliffe; 2. Lord Bagot.

Two Bunches of any white kind of Grape—1. Lord Bagot; 2. Mr F. Dixon; extra prize, Mr Worswick.

One Pine-Apple, "Queen"—1. Mr F. Dixon; 2. not awarded.

One Pine-Apple, any other kind—1. Mr H. Walker; 2. Mr T. N. Miller.

Six Bunches of Grapes—1. Lord Wharnccliffe.

Two Baskets of Grapes—Mr F. Dixon.



REVIEW.

THE PARKS, PROMENADES, AND GARDENS OF PARIS. By W. Robinson, F.L.S.

This is a handsomely got up volume of 644 pages, containing 400 illustrations, all bearing upon the subjects of which it treats—showing the various methods of training fruit-trees in vogue in France; the implements used in horticulture and arboriculture; the hothouses, frames, and other appliances used for producing early fruit, flowers, and vegetables; plans of the principal parks round Paris: with copious illustrations of French landscape-gardening; lists of the most interesting places to those in search of the best examples of French horticulture; and, last, but not least, plans of the Mushroom-caves of Paris, besides a great deal more that time and space debar a reference to at this time.

The descriptive letterpress is clearly written, and full in all details; and it will enable any one with moderate horticultural skill to carry out in this country whatever may strike him as being worth copying.

The volume is worthy a place in every gardener's library.

Notices to Correspondents.

J. R.—We consider *Lomaria Gibbii* a Tree-Fern. We have a plant of it with a clear stem of 18 inches.

We doubt if Mr F. can get any redress from his Dutch correspondent. The best way is to avoid having any dealings with unknown correspondents.

R. H.—Such plants as dwarf Palms, *Dracænas*, Tree-Ferns, *Ficus elastica*, *Aralias*, and *Crotons* will suit you for winter decoration. For summer, any of the fine-foliaged plants, such as *Caladium Coleus*, Ferns, with the gayer class of flowering-plants, will do. You should visit some respectable exotic nursery, where you can easily make a selection to suit your purpose.

A LOVER OF FLOWERS.—It is impossible for us to advise you how to bed out your little garden in the space at our disposal for these notices, and specially as we do not know what plants you have. Procure 'The Handy Book of the Flower-Garden,' Blackwood & Sons, Edinburgh, and Paternoster Row, London, and you will get full instructions.

VITIS.—Your Vines are attacked by the Vine mildew. Lose no time in painting your hot-water pipes with sulphur. Keep the atmosphere of the vinery dry, and increase the heat and ventilation. This should check the malady if taken in the bud; but if it has made much progress on both foliage and fruit, mix a quantity of sulphur in clear tepid water, and syringe the Vines with it, both fruit and foliage, after which keep the house dry for a time. When the parasite is dead, syringe the bunches with clean water, so as to wash the sulphur off them; a little of it left on the foliage will do no harm. You never can be too watchful for this most destructive of all the ills that Vines are heirs to. The moment you observe a spot on leaf or berry of something like hoar-frost, apply a glass to magnify it, and you will discover the parasite. It spreads with magical rapidity, therefore attack it at once with dry air and sulphur.

R. G.—The Golden Champion is the most robust and vigorous Vine we know, whether grafted on another stock or on its own roots. We have it on Muscats, Hamburgs, White Tokay, Raisin de Calabrica, and on its own roots, and can observe no difference in its growth. In your case we would inarch it, as no Vine succeeds well when planted in a border that has been made some years, as yours has been. The other Grape you refer to is a very free bearer, and with us has set well. A writer in the 'Chronicle,' we think it was, said it did not set freely. This is not our experience of it. We have it inarched on the Black Hamburg and Muscat Hamburg, Lucombe and Pince. Mr Meredith, or any nurseryman, can supply you with a plant of it, and we advise you to inarch it on one of your established Vines.

W. S.—The failure of the late Peach crop this year is all but universal, and is the result of the fine warm weather we had in February, which set the sap in motion early. This was succeeded by the severe cold winds of March, which checked the sap; and when the warm weather of April came, the buds fell off instead of setting. Your gardener has done all he could do to save them, and is no way to blame.

J. F.—Apricots are by no means a certain crop under glass. They should have plenty of air when in bloom, and see that they never get dry at the roots. Pears fruit very well in pots; but unless the ventilation of the house they are in is very complete, so that a current of fresh air passes through and amongst the trees, the flavour is often defective.

CYMRU.—You should have sent us a frond of the Fern with spores on it. We think it is *Asplenium Adiantum nigrum* var. *acutum*.

We cannot, without a flower sent with it, say what the other plant is.

THE GARDENER.

JULY 1869.

THE ROSE.

(Continued from page 251.)

CHAPTER XII.—CONCERNING ROSE-SHOWS.



WHEN that delightful young officer of her Majesty's Guards paid a guinea, no long time ago in London, to the great spiritualist, medium, or whatever the arch-humbug called himself, of the season, and when, after a lengthened communication with the spirit of his departed mother, he looked at his watch, and courteously apologised for his abrupt exodus, "but he had promised to lunch with the lady in question punctually at two o'clock," he completely demolished the baseless fabric of my little dream, how charming it would be to have an hour's table-talk with some of our old Rosarians.

I am with them, nevertheless, and without humbug, in spirit many a time, honouring their memories, and always regarding them with a thankful filial love. I like to think of them among their Roses, as I wander among my own, mindful how much of my happiness I owe, humanly speaking, to their skill and enterprise, remembering them as we Rosarians of to-day would fain be remembered hereafter, when our children's children shall pluck their snow-white Madame Furtado, and wish we were there to see. I like to think of Lee of Hammersmith complacently surveying those standard Rose-trees which he introduced from France in the year 1818, which were the first ever seen in England, and which he sold readily (it was reported at the time that the Duke of Clarence gave him a right royal order for 1000 trees) at one

guinea a-piece. I like to imagine the elder Rivers, looking on, a few years later, half pleased and half perplexed, as Rivers the younger, now grey with age, but young in heart as ever, budded his first batch of Briers, and the old foreman who had served three generations boldly protested,—“ Master Tom, you’ll ruin the place if you keep on planting them rubbishy Brambles instead of standard Apples ! ” I fancy the pleasant smile on Master Tom’s handsome face, knowing as he did that instead of the Brier would come up the Rose, that his ugly duckling would grow into a noble swan, and that there were other trees besides Golden Pippins which were productive of golden fruit. Then I wonder what those other heroes of the past, Wood of Maresfield, Paul of Cheshunt, and Lane of Birkhampstead, would say to their sons and grandsons, could they see the development of the work which they began—the Roses, not only grown by the acre instead of by the hundred, but in form and in colour beautiful exceedingly beyond their hope and dream. I picture to myself Adam Paul’s delight at the “ 72 cut Roses, distinct,” with which George has won the first prize at “ the National ; ” and the admiration which would reproduce “ Brown’s Superb Blush ” on his countenance, after whom that Rose was named, could he behold those matchless specimens in pots, with which Charles Turner, his successor, still maintains against all comers the ancient glories of Slough.

Of the old Rosarians, Mr Lee of Hammersmith was the first who obtained the medals of the Royal Horticultural Society for Roses exhibited at Chiswick, and at the monthly meetings in Regent Street. These Roses were shown singly upon the bright surface of japanned tin cases, in which bottles filled with water were inserted, the dimensions of the case being 30 inches by 18. In 1834, Mr Rivers won the two gold medals for Roses shown at Chiswick, introducing a new and more effective arrangement, by placing the flowers in fresh green moss—a simple, graceful, natural combination, unanimously accepted by the exhibitors of Roses from that day to this. These prize blooms from Sawbridgeworth, the advanced-guard of a victorious army, were shown in clusters or bouquets of five, six, and seven Roses, and were the best specimens which skill and care could grow of the varieties which then reigned supreme—Brennus, George IV., Triomphe d’Angers, Triomphe de Guerin, &c. What a royal progress, what a revelation of beauty, has Queen Rosa made since then ! In that same year Mr Rivers published his first, and *the* first, ‘ Descriptive Catalogue of Roses.’ It enumerates by name 478 varieties. How many of them, ‘ think you, are to be found in his list for 1869 ? Eleven !—eight of them Climbing Roses, two Moss, one China—but none of them available for exhibition. Will it be so with *our* Roses, when thirty-five years have

passed? I believe, I hope so. I believe that our sons will see the Rose, developing its perfections more and more to reverential skill, and I hope that the sight may bring to their hearts our love and happiness, for it cannot bring them more. The Roses of to-day exhaust all our powers of admiration, our finite appreciation of the beautiful. The Roses of to-morrow can do no more. The Rosarian may "raise" hereafter flowers large enough to cradle Cupid—

"Within the petals of a Rose
A sleeping love I spied;"

but he cannot have a higher delight surveying them than Rivers enjoyed over his George IV. one fine June morning, more than thirty years ago.*

Mr Wood of Maresfield, who had learned the art of Rose-growing in sunny France, was the next valiant knight who made his bow to the Queen of Beauty, and won high honour in her lists. Then followed Mr Adam Paul of Cheshunt, and then Mr Lane of Birkhamstead. These were the heroes of my youth, and when I joined the service, a raw recruit, in 1846, the four last named—Rivers, Wood, Paul, Lane—were its most distinguished chiefs. But our warfare in those days was mere skirmishing. We were only a contingent of Flora's army—the Rose was but an item of the general flower-show. We were never called to the front; we were placed in no van, save that which took us to the show. And yet, then as now, whatever might be its position, the Rose was the favourite flower; then as now, the visitor, oppressed by the size and by the splendour of gigantic specimen plants, would turn to this sweet flower, and sigh, "There is nothing, after all, like the Rose."

Year by year my enthusiasm increased, and my Roses multiplied from a dozen to a score, from a score to a hundred, from a hundred to a thousand, trees. They came into my garden a very small band of settlers, and speedily, after the example of other colonists, they civilised all the former inhabitants from off the face of the earth. Nor were they content with the absolute occupation of that portion of my grounds in which they were first planted. The Climbing Roses peeped over the wall on one side, and the tall Standards looked over the Yew hedge on the other, and strongly urged upon their crowded brethren beneath (as high and prosperous ones had urged before upon their poorer kinsfolk, pressing them too closely) an exodus to other diggings, to "fields fresh and pastures new." So there was a congress of the great military chiefs, Brennus (Hybrid China), Scipio (Gallica), Maréchal Bugeaud

* See his 'Amateur's Guide,' ninth edition, p. 32. I may here express my gratitude to Mr Rivers for a copy of his first catalogue, and for the dates and facts, which I have repeated, concerning the old Rosarians.

(Tea), Duke of Cambridge (Damask), Tippoo Saib (Gallica), Generals Allard, Jacqueminot, Kleber, and Washington (all Hybrid Chinas), Colonel Coombes, Captain Sisolet, &c. ; and their counsel, like Moloch's, was for open war. They said it was expedient to readjust their boundaries. They unanimously advised an immediate raid upon the vegetable kingdom which adjoined their own. They discovered that they had been for years grossly insulted by their neighbours (Aimée Vibert was almost sure that a young Potato had winked his eye at her), and the time for revenge was come. No, not revenge, but for enlightenment and amelioration ; seeing that these blessings must inevitably attend their intercourse with any other nation, and that, consequently, an invasion, with a touch of fire and sword, was beyond a doubt the most delightful thing that could happen to the barbarians over the way. Géant des Batailles (Hybrid Perpetual) waved the Standard of Marengo (ditto), and they sallied forth at once. They routed the Rhubarb, they carried the Asparagus with resistless force, they cut down the Raspberries to a cane. They annexed that vegetable kingdom, and they retain it still.

Yes, everything was made to subserve the Rose. My good old father, whose delight was in agriculture, calmly watched the robbery of his farm, merely remarking, with a quaint gravity and kindly satire, that, "not doubting for a moment the lucrative wisdom of applying the best manure in unlimited quantities to the common hedgerow Brier, he ventured, nevertheless, to express his hope that I would leave a little for the Wheat."

Simultaneously with this love of the Rose, there deepened in my heart an indignant conviction that the flower of flowers did not receive its due share of public honours. I noticed that the lovers of the Carnation had exhibitions of Carnations only, and that the worshippers of the Tulip ignored all other idols. I saw that the Queen of Autumn refused the alliance of each foreign potentate, when she led out her fighting troops in crimson and gold gorgeous. The Chrysanthemum, alone in her glory, made the halls of Stoke Newington gay. Even the vulgar hairy Gooseberry maintained an exhibition of its own ; and I knew a cottager whose kitchen was hung round with copper kettles, the prizes which he had won with his Roaring Lions, his Londons, Thumpers, and Crown-Bobs. Was the Queen of Summer, forsooth, to be degraded into a lady-in-waiting ? Was the royal supremacy to be lost ? No—like

"Lars Porsenna of Clusium,
When by his gods he swore,
That the great house of Tarquin
Should suffer wrong no more"—

I vowed that her Majesty should have her own again, and in a court

of unparalleled and unassisted splendour should declare herself monarch of the floral world.

Carrying out this loyal resolution, I forthwith suggested in the pages of 'The Florist' (April 1857), to all Rose-growers, amateur and professional, "that we should hold near some central station a GRAND NATIONAL ROSE-SHOW—a feast of Roses, at which the whole brotherhood might meet in love and unity, to drink, out of cups of silver, success to the queen of flowers." And I must confess that, when I had made this proposal to the world, I rather purred internally with self-approbation. I felt confident that the world would be pleased. Would the world send me a deputation? Should I be chaired at the London flower-shows? Perhaps I should be made a baronet. For some days after the publication of the magazine I waited anxiously at home. I opened my letters nervously, but the public made no sign. Had it gone wild with joy, or were its emotions too deep for words? Weeks passed and it still was mute. I was disappointed. I had thought better of mankind, but I was disappointed, even as that dog of Thompson's, whose sad story is told in these parts as a warning to the over-sanguine. He heard one morning the sound of familiar footsteps approaching at the hour of food. He said to himself, "What jolly dogs are we!" he rushed towards the door, jumping and frisking, for he *thought* they were bringing him his breakfast; and . . . *they took him out and hanged him.*

The suspense in both cases was extremely disagreeable, but I had this advantage, that mine was too brief to be fatal. I had power to cut the knot, and I exercised it by writing to our chief Rosarians the simple question, "Will you help me in establishing a National Rose-Show?" Then were all my doubts and disappointments dispelled, and the winter of my discontent made glorious summer, for the answers which I received, as soon as mails could bring them, might be summed up in one word, "Heartily." The three men, the triumviri, whose sympathy and aid I most desired—Mr Rivers, king of rosists, Mr Charles Turner, prince of florists, and Mr William Paul, who was not only a successful writer upon the Rose, but at that time presided, practically, over the glorious Rose-fields of Cheshunt—promised to *work* with me; and the rest to whom I wrote (not many at first, because too many captains spoil the field-day, and too many huntsmen lose the fox) assented readily to all I asked from them. I was quite happy, quite certain of success, when I had read these letters; and I remember that in the exuberance of my joy I attempted foolishly a perilous experiment, which quickly ended in bloodshed—I began to whistle in the act of shaving!

Shortly afterwards we met in London, as members of her Majesty

Queen Rose's Council. The council chamber (Webb's Hotel, Piccadilly) was hardly so spacious, or so perfectly exempt from noise, as became such an august assembly, but our eyes and our ears were with the Rose. We commenced with a proceeding most deeply interesting to every British heart—we unanimously ordered dinner. Then we went to work. We resolved that there should be a Grand National Rose-Show, and that we would raise the necessary funds by subscribing £5 each, as a commencement, and by soliciting subscriptions. That the first show should be held in London about the 1st day of July 1858. That the prizes, silver cups, should be awarded to three classes of exhibitors—namely, to growers for sale, to amateurs regularly employing a gardener, and to amateurs not regularly, &c. We then discussed minor details, and having agreed to reassemble when our financial prospects were more clearly developed, we parted.

And I thought, as I went rushing down the Northern Line, what a joyous, genial day it had been. Personally unknown to my coadjutors, we had been from the moment our hands met as the friends of many years. So it is ever with men who love flowers at heart. Assimilated by the same pursuits and interests, hopes and fears, successes and disappointments—above all, by the same thankful, trustful recognition of His majesty and mercy who placed man in a garden to dress it—these men need no formal introductions, no study of character to make them friends. They have a thousand subjects in common, on which they rejoice to compare their mutual experiences, and to conjoin their praise. Were it my deplorable destiny to keep a toll-bar, on some bleak, melancholy waste, and were I permitted to choose in alleviation a companion, of whom I was to know only that he had one special enthusiasm, I should certainly select a florist. Authors would be too clever for me. Artists would have nothing to paint. Sportsmen I have always loved; but that brook, which they will jump so often at night, does get such an amazing breadth—that stone wall such a fearful height—that rocketing pheasant so invisible—that salmon (in Norway) such a raging, gigantic beast, that, being fond of facts, my interest would flag. No; give me a thorough florist, fond of all flowers, from a red Campion to *Lœlia purpurata*. We should never be weary of talking about our favourites; and, you may depend upon it, we should grow *something*.

In all sobriety, I often wish that we, who, in these locomotive days, frequently find ourselves in our great cities, especially when our exhibitions are open, might have better opportunities from time to time of gratifying our gregarious inclinations. Why, for example, should not the Horticultural Club in London have a permanent building like other clubs, of course on a scale proportioned to its income, where we might write our letters, read our newspapers, and (dare I mention

it?) smoke our cigars, with every probability that we should meet some genial friend? Only let Mr Richard Dean direct, as now, and there would be no fear of failure. Not only in London, but in Edinburgh, in Dublin, in Paris, I would have a horticultural club, where gardeners (a title which every man is proud of, if he feels that he has a right to claim it) might assemble in a fraternal spirit, as brethren of that Grand Lodge whose first master wore an apron of leaves, and whose best members were never yet ashamed if their own were of purple baize. As time went on, we might have a library of horticultural, botanical, geological, and chemical books. We might have pictures, after the manner of our dear old "Garriek" in King Street, of some famous chiefs who had conferred real benefits upon the gardening world. How glad we should be, for instance, to see a good likeness of "the Doctor," and of quaint old Donald Beaton!

"My dear fellow," said to me a young person, whom, after going through his admirable gardens and houses, and hearing his *professions* of interest, I had mistaken for a florist, and to whom I had incautiously revealed my club aspirations, "you surely don't suppose I should meet my gardener!" And he wore an expression of horror, as though I had asked him to join a select party of lepers and ticket-of-leavers. "Calm yourself," I made answer; "there is no fear of collision. You would not be elected, I assure you." Fancy a fellow pretending to be fond of art, and wincing at the idea of meeting an artist. Fancy Kynaston declining to dine with Pilch, or Mr Grace supposing that disgrace would follow a weed with Richard Daft. More than this, he who knows and reverences the gardener's art must be a gentleman. He may not be aware that to leave out the *h* in Horse-radish, or to sound the same in honour, is an offence less pardonable than profane swearing; he may even be ignorant that to eat Pease with a knife is one of the deadly sins;—but, nevertheless, if he loves his flowers, he must be in heart a gentleman. But we have lost our way to the Rose-show.

We went back to our homes. We appealed for subscriptions to the lovers of the Rose, and they responded, as I knew they would. They responded until our sum total nearly reached £200. We published our schedule of prizes, amounting to £156. We engaged St James's Hall, an expensive luxury, at 30 guineas for the day, but just then in the first freshness of its beauty, and therefore an attraction in itself. We secured the services of the Coldstream band—a mistake, because their admirable music was too loud for indoor enjoyment. We advertised freely. We placarded the walls of London with gorgeous and gigantic posters. And then the great day came.

The late Mr John Edwards, who gave us from the first most impor-

tant help, and who was the best man I ever saw in the practical arrangements of a flower-show, was first, soon after daybreak, on the scene. He found the hall crowded with chairs and benches, just as it was left after a concert the night before. Early as it was, he had his staff with him—carpenters and others; and when I arrived with my Roses, after a journey of 120 miles, at 5.30 A.M., the long tables were almost ready for the baize. Then came the covered vans which had travelled through the summer night from the grand gardens of Hertfordshire, and the “four-wheelers,” with green boxes piled upon their roofs, from all the railway stations. And then the usual confusion which attends the operation of “staging”—exhibitors preferring their “own selection” to the places duly assigned to them, running against each other, or pressing round Mr Edwards with their boxes, as though they had something to sell—vociferating like the porters at Boulogne, who, having seized your portmanteau, insist on taking your body to their hotel. He, however, was quite master of the situation, and upon his directions, clearly and firmly given, there followed order and peace.

And there followed a scene, beautiful exceedingly. I feel no shame in confessing that when the hall was cleared, and I looked from the gallery upon the three long tables, and the platform beneath the great organ, glowing with the choicest Roses of the world, the cisterns of my heart o’erflowed—

“A flood of thoughts came rushing, and filled mine eyes with tears.”

“Half the nurseries of England,” as Dr Lindley wrote, “poured their treasures into St James’s Hall.” There were twenty boxes from Sawbridgeworth alone. There were glorious collections, large and lovely, from Cheshunt and Colchester, Hertfordshire and Hereford, Exeter and Slough. But I had brief time, as secretary and supervisor, that day for “idle tears,” or other private emotions; for, had I been editor of ‘Notes and Queries,’ the ‘Field,’ and the ‘Queen’ conjointly, I could not have had more questions put to me. Had I possessed the hundred hands of Briareus, not one would have been unemployed. Then the censors reported their verdicts; the prize-cards were placed by the prize Roses; and then came

The momentous question, Would the public indorse our experiment? Would the public appreciate our show? There was a deficiency of £100 in our funds, for the expenses of the exhibition were £300; and as a matter both of feeling and finance, I stood by the entrance as the clock struck two, anxiously to watch the issue.

No long solicitude. More than fifty shillings—I humbly apologise—more than fifty intelligent and good-looking individuals were waiting for admission; and these were followed by continuous comers, until

the hall was full. A gentleman, who earnestly asked my pardon for having placed his foot on mine, seemed perplexed to hear how much I liked it, and evidently thought that my friends were culpable in allowing me to be at large. Great indeed was my gladness in *seeing* those visitors—more than 2000 in number—but far greater in *hearing* their hearty words of surprise and admiration.

At the close of the exhibition it was my happy privilege to distribute the thirty-six silver cups which had been specially designed for the occasion, and were, as I need hardly say, prettily and profusely engraved with Roses. The winners were—(of nurserymen) Messrs Paul of Cheshunt, Mr Cranston of Hereford, Mr Cant of Colchester, Mr Francis of Hertford, Mr Turner of Slough, and Mr Hollamby of Tunbridge Wells: and (of amateurs) Mr Giles Puller of Youngsbury, Captain Maunsell and Rev. G. Maunsell, Thorpe Malsor; Mr R. Fellowes and Rev. R. Fellowes, Sholtesham; Mr Worthington, Cavendish Priory; Rev. H. Helyar, Yeovil; Mr Mallett, Nottingham; Mr Sladden, Ash; Mr Fryer, Chatteris; Mr Walker, Oxford; Mr Hewitt, and Mr Blake of Ware. Two cups were awarded to my own Roses, the process of presentation being “gratifying, but embarrassing,” as Mrs Nickleby remarked when her eccentric lover would carve her name on his pew.

So ended the first Rose-Show. It was, as one of its best supporters, and one of our best Rosarians, the Rev. Mr Radclyffe, wrote of it, “successful beyond all anticipation;” and I went to bed that night as tired, as happy, and I hope as thankful as I had so much good cause to be.

The Second National Rose-Show was held in the following year, June 23, 1859, at the Hanover Square Rooms, the former site not being available; and again we had the best Roses of England, a goodly company, and prosperous issues. The general effect, although the introduction of pot-Roses broke gracefully the monotonous surface of the cut flowers, was inferior to that produced in the more genial summer of 1858, and in the more ample and ornate accommodations of St James’s Hall. But it was now more evident than ever, that although we had toned down our music by substituting strings and reeds for brass, no room in London was large enough for the *levées* of the Queen of Flowers. Next year, accordingly, after a correspondence and arrangement with the directors,

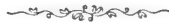
The Third National Rose-Show was held (July 12, 1860) in the Crystal Palace at Sydenham. Here was a throne-room meet for her Majesty, and 16,000 of her lieges came to do her homage. Naturally and wisely, the Crystal Palace Company resolved, upon this, to have a Rose-show of their own. Long may it prosper!

The Fourth National Rose-Show was held under the auspices of the

Royal Horticultural Society in their gardens at South Kensington, July 10, 1861, and there it has since flourished in all its first strength and beauty. I was very grateful to find such a genial soil and excellent supervision for a plant which was growing rather too large for me—that is, to transfer to abler hands a work which, with all its gratifications, interfered at times unduly with my other engagements. Moreover, to tell you all the truth, in the happy spring-tide of 1861 I had a correspondence which occupied all my time, upon a subject which occupied all my thought—a subject more precious, more lovely even than Roses—I was going to be married in May.

Have I created in thy breast, O amateur, a desire to win honour at Queen Rosa's tournaments? Have you an ambition to see upon your sideboard cups of silver encircled by the Rose? Listen, and I will now tell you what Roses to show, and how to show them.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

THE APPLE.

(Continued from page 255.)

AFTER the first season's growth is over there will be one, two, or three shoots upon every young Apple which has been grafted, according to the strength of the stock and the energy of the graft. It will now be the duty of the cultivator to decide upon the form and manner of the training to be employed for each tree. If for standards, the best and straightest shoot must be selected, and the rest removed close back to where they started. The shoot which is left must be encouraged upward, and if ripe to the top, must be left at full length. This will not probably be the case, and if so, let it be cut back to where the wood is firm and ripe; and the succeeding year the shoot which starts from this bud must be trained to a stake and led up to the desired height, which will in all probability be attained before the end of the season. At pruning-time cut back to the height desired to form a head, after which it may be trained according to any of the methods recommended for the Pear, just as the cultivator may have an inclination. If dwarf standards are wanted, the best shoot must again be selected and cut back to 1 or $1\frac{1}{2}$ foot, as the case may be, and afterwards get the same training as I have formerly recommended for the Pear. It may be necessary for the first year or two to use stakes for spreading out the branches to form a shapely tree. This,

however, is not always necessary, as the man who can use his knife thoroughly will be able to cut so as to form a tree without having recourse to such an unsightly procedure. If it is intended to form trees either for espaliers or walls, let the form intended be selected and worked out upon the principles laid down when treating of the Pear. The directions there given for the whole after-management of the Pear will require also to be regularly attended to in the after-management of the Apple in its various stages. Root-pruning must be rigidly attended to every second year, so that the roots may not get rambling at will either downwards or horizontally. If it is done regularly, and some good loam—slightly enriched, if necessary, in such a manner as shall be hereafter directed—be applied at each root-pruning, it will be found that at the end of fifteen or twenty years the trees will be a mass of fibrous roots, with a ball nearly a ton in weight, and so entwined within the grasp of these roots that it would be quite an easy matter to remove the tree to any portion of the garden without the slightest hurt to either the tree itself or the crop of the succeeding year. This, no doubt, is a great consideration; yet, nevertheless, the great object in root-pruning is to obtain a healthy vigorous-constituted tree, which shall early come into a good bearing condition, and which shall continue to enjoy good health and remain free from many of the diseases to which the Apple is heir during a protracted and useful existence. In root-pruning it ought always to be borne in mind that the tree requires not only to be “dug about and dunged,” but that it also requires to be *dug beneath and dunged* as well; for it is from the very roots which are often allowed to remain at root-pruning-time that most of the canker gets into the tree which so often proves highly injurious to the future wellbeing thereof. At each operation the plant ought to be turned over from side to side, so that it may be clearly seen that no enemies of this kind are allowed to remain.

It is not absolutely necessary to prepare the borders for Apples as I have directed for the Pear, yet at the same time, if it were within my power, I would do so. There is far oftener much lost by doing a thing in a medium way than there is by doing it well. I therefore would in all cases say, “Do a thing well if you do it at all;” but failing this, or not having the means to do it, let the next best be done within our reach. It is not, however, beyond the reach of any one to have the drainage made as good as possible, and this I believe to be the first step in the right direction. The fact is, nothing can be worse for fruits or vegetables of any sort than to have the cold wet rains of autumn and winter continually lodging about their roots until the whole soil becomes sodden and sour through their continual presence. The Apple is not quite so particular about its soil as the Pear, but still

the best soil will still be the best. A good rich soil similar to what I recommended for the latter will be found to be the best for the Apple, although it may be often seen that good fruit has been obtained without all the trouble and expenses my system would incur. This can, however, be no objection to my plans ; for it will be found, as a rule, that wherever the Apple succeeds best, either in a natural or prepared soil, that the food provided for it approaches very nearly to what I recommend as being the best for Apple-cultivation if it is to be successful.

The soil and all other things being in readiness, the Apples may be planted into their permanent positions any time after they are two years old, up to six or eight years of age. In the case of renewing an old garden with young fruit-trees, it is the best plan to grow on the young ones until they are into a good regular fruit-bearing condition, which should be arrived at by the end of six or eight years. This is the case with us here, and all the old trees are still standing in their places to enable us to obtain a supply of fruit until the young ones are fully bearing. I have therefore had recourse to the following expedient: One of the divisions of the garden is filled up with about three hundred of Pears, Plums, and Apples, planted 6 feet apart each way. They are five and six years old from the graft, and I hope and expect by the end of three or four years more to be able to dispense with the old trees and have them replaced with the new. In planting these young trees, the pits were dug out and fresh soil put in to receive the plants ; upon this they were planted, and the pits filled up with the same material. At the end of each two years they receive a good root-pruning ; and by the time they are required for planting out I expect them to lift with good balls of 2 or 3 cwt., as they receive an addition at each operation of the same material in which they were at first planted, as well as a top-dressing of dung. The best time to plant fruit-trees of any sort is the end of September or beginning of October, before the leaves are fully ripe, so that they may become partially established in their places ere the period of rest has come about. In the case of transplanting trees of six or eight years old, it would even be better, where good large balls can be obtained, to do so in August, as the check which they will get by the operation will enable them to set a good crop of flower-buds for the following season. Any one who may try this experiment need not be alarmed to see the foliage flag considerably for a time. In the course of a month or so they will all come right again if the following directions be attended too: In removing the trees, be as careful as possible not to break the balls ; have the places for them prepared before lifting them ; have them planted one by one as they are lifted, and allow them to be as little exposed to the sun as

possible during the operation. After planting, give them a good watering to settle the soil about their roots, and afterwards give them a mulching of 4 or 5 inches of good stable-dung to prevent evaporation. If through any mischance the balls have got broken and the trees appear to flag greatly, a good syringing overhead morning and evening will assist them greatly to get re-established.

In selecting a place for the cultivation of the Apple there are two things to be encountered—viz., exposure to the west and south-west, from where we get our severest storms at the period when the trees are laden with fruit, and consequently in danger of being tossed about and broken off. The other danger is exposure to the north, north-east, and east, from where our frosts invariably come at the season of blossoming. Now, to avoid these, the place selected—if a choice can be made—should have a gentle slope towards the south or south-east, and be protected with plantations from the south-west round the north to the east. If such a position as this can be selected with a soil suitable for the Apple to grow, no one need be afraid for the after-results. This of course applies entirely to orchard plantations, as in the case of gardens surrounded by high walls such precautions are not so necessary, nor are they at all times available. The distances at which the trees are to be planted will be regulated according to the stock which has been used. If the free stock or common Crab has been used, we may expect the trees to grow to a good size. 24 to 30 feet will be a very good distance for orchard plantations; but where the trees are to be kept dwarf, either by the knife or otherwise, 15 to 20 feet will be better. If the stock used was the Paradise, then the distance may be reduced from 10 to 15 feet apart. It is not advisable, however, to overcrowd, as the more light and air we can admit to each individual tree, the better will the wood be ripened, and the better chance we will have of a crop the year succeeding.

Having assigned the west aspect to the Pear, there is no other position than the east to be given to those placed upon the wall. No doubt several of the better varieties deserve a better position than this, but, as I formerly said, circumstances often prevent us from doing as we would exactly like. In planting against the wall, the distances recommended for placing the Apple must be regulated by the same laws as laid down when handling the same subject regarding the Pear.

JAMES M'MILLAN.

(To be continued.)



CUTTING DOWN YOUNG VINES TO GET TWO GROWTHS IN ONE SEASON.

IN 1865 I was anxious to prepare a quantity of extra strong young Vines in large pots, and not being very well off for a place to grow them in, they were put into a Muscat-house with a high temperature. This was after they had been shifted into 14-inch pots. Under circumstances over which, unfortunately, I could have no control, they were allowed to remain in said house till the Muscats completely covered the roofs of the vinery, and became gradually weaker and weaker from the want of light and air, so that they looked more like being sent to the rubbish-heap than ever becoming Vines that would bear a crop the following year. I, however, decided to cut them down to within a bud or two of the surface of the pot, and had them placed in a light house with a night temperature of 70°, with 15° to 20° more with sun-heat by day. Water was sparingly applied, and they very soon burst their main buds, which, under ordinary circumstances, would not have moved till the following year. They came away with amazing vigour, and made magnificent Vines 10 feet long—the strongest I ever had under my care.

This season, on the 16th March, I planted a house of Muscats, and the last week of May, after they had made fine growths 8 and 9 feet long, these were cut down as described above. They likewise soon burst their main buds, and are now twice as strong as they were when the same length in their first growth. And where Vines planted one year are required to yield the finest possible crop the year following, I would strongly recommend this two-growths-in-one-season system as one that will produce a more vigorous Vine of a given length than if allowed to grow on at first.

All gardeners who have had the charge of Vines can scarcely fail to have observed how very strongly a Vine in a green unripened state, when growing vigorously, bursts its main buds when the laterals are closely stopped; and the same increase of dimensions takes place when a young Vine is cut down as I have described. It is necessary, however, in order to get season sufficient to ripen the second growth thoroughly, that the Vines be planted in March, and that the cultivator have a good command of heat in the case of Muscats especially.

D. THOMSON.

DRUMLANRIG.



**MESSRS CARTER & CO.'S NURSERY, PERRY HILL,
SYDENHAM, KENT.**

THIS establishment has become a most important adjunct of the extensive business of Messrs James Carter, Dunnett, & Beale, of High Holborn, London. A few years ago, when this enterprising firm branched out into seed-growers and nurserymen, the then small Crystal Palace Nursery at Perry Hill was taken by them, and since that time it has grown into one of the first bedding-plant nurseries of the day. Not that bedding-plants are the sole feature of this nursery, for a general nursery stock is largely cultivated, but bedding-plants are a special feature, and consequently largely cultivated. At no season of the year could a more interesting visit be paid to this nursery than during the end of April or early part of May, just before the heavy bedding trade commences. Like an immense floricultural army gathered together to be reviewed may the extensive array of bedding-plants seen here at this season be likened, as all the intermediate and cool houses and pits present the appearance of a succession of regiments wearing divers-coloured uniforms when the plants are arranged in groups of each kind from which to select orders, as it is computed there are one million bedding-plants ready for sending out, besides those advancing onward to this stage of readiness from the propagating house—which can be seen in almost countless thousands. In this nursery there are six span-roofed houses, each 150 feet in length and 20 in width, and in each of which it is stated 100,000 bedding-plants can be arranged in different stages of growth. In addition to the ordinary stages in each house, extra-ordinary ones are extemporised in the form of broad commodious shelves, used for the purpose of economising space. Even with so much room, a deep narrow large thumb-pot is used for the first shift of the plants, thirty-six of which will stand on a square foot of shelf. On the south side of each of these long houses (they all run from east to west) there are ranges of pits of great width, and in some instances on the north side as well, while the more advanced and hardier stuff occupy shallow brick pits, which can be covered with mats nailed to wooden frames should the weather turn cold or excessively wet. The general character of the bedding-stuff was of a short, stocky, yet vigorous character, apparently well adapted for exposed situations.

The centre stage of one of these houses contained Vines in 8-inch pots, six pots in width, with an alley between. The spaces between the pots are stuffed with spent hops, and a good heat was being maintained. These Vines remain here till the end of August, when, the growth being matured, they are hardened off elsewhere. It was said

there were upwards of 2000 Vines in pots in this nursery, independent of a great number growing from eyes in smaller pots. The shelves and one of the side stages were filled with the tenderer kinds of bedding-stuff, being encouraged to make growth. On the south side was a row of twenty-one varieties of frame Cucumbers, trained to the roof, and grown simply for trial. Nearly all were in bearing, and doing remarkably well. Some were especially good—as, for instance, Newton Hero, a fine white-spined variety, with a short heel; Coleshill Black Spine, very good; and Carter's Champion, a nearly smooth variety, having a slight black spine. Arranged between the Cucumbers were pot-roots of Dahlias and Vines from eyes.

A similar house was devoted entirely to bedding-stuff, but parted into three divisions, one being a propagating house, having the left hand devoted to striking cuttings, on the right hand being quite an array of all the new Coleuses, for which a great demand is expected. The next division of the house was almost entirely filled with Coleuses: on one side were specimen plants of each kind, two of a sort, the most striking being Her Majesty, Prince of Wales, and Batemanni; while there were an additional six specimens in extra large pots of the new golden-leaved kinds, Her Majesty being very fine. The other division was mainly filled with Coleuses. Another house contained bedding-plants in 60-sized pots. Coleuses were here also, and a great number of Petunias; also the variegated *Perilla Nankinensis*, having the dark leaves varied with scarlet, and blotched with claret and white; also Lantanas, Cannas in great numbers, Lobelias, Heliotropes, *Tropæolums*, &c. In another house were *Alternantheras* in such numbers as to lead one to suppose they must be in great demand for bedding purposes, though occasionally condemned. *A. paronychioides* and *A. spathulata* are the most useful, and in the largest demand. *A. (Teilanthera) amœna* is also much used, though not so hardy as the foregoing. It was computed there were 12,000 *Alternantheras* in this and other houses. Here were also Coleuses again—a great lot in thumb-pots.

If the numbers in which any particular plant was being propagated may be taken as evidencing its value for bedding purposes, then *Fuchsia Cloth-of-Gold*, one of the golden-leaved kinds, must be in large demand. There were about 6000 plants of this about the nursery. Mrs Treadwell *Tropæolum*, also, is being largely propagated, and ranks high as a bedding-plant. It has a sub-trailing habit, dark bronzy foliage, and superb crimson flowers. In different parts of the establishment were 20,000 Mrs Pollock, this well-known variegated zonal *Pelargonium* being naturally enough in large demand, as it is as yet unsurpassed for bedding purposes in its section. Then of the ordi-

nary bedding Pelargoniums, there is a great run upon Excellent, rich scarlet; Stella, nosegay; Crystal Palace, scarlet, a dwarf-growing variety; Christine, pink; Madame Vaucher, white; Crystal Palace Gem, one of the Cloth-of-Gold section, and a most useful bedder, &c.

Still another house, and here was a wonderful collection of double Pelargoniums, some 3000 in number, including very fine specimens of each of the double varieties. Of these, Madame Lemoine was very fine, having superb rose-coloured flowers fully 2 inches across; Tom Thumb, fiery red, flowers rather loose, and apt to burn in the summer; and Wilhelm Pfitzer, orange-scarlet, habit dwarf and close, a fine new variety. Messrs Carter & Co. are now cultivating 24 assumed varieties of double Pelargoniums. In this same house were variegated zonale, silver variegated, and gold and bronze zonale Pelargoniums in great abundance, fine young stuff, bushy and compact in growth. Some specimen ivy-leaved Pelargoniums, trained on wire shapes, were especially noticeable for their fine cultivation, especially examples of the two new kinds, Duke of Edinburgh and l'Elegante. In this house also was a splendid plant of *Clanthus Dampieri*, finely bloomed.

In other houses were Azaleas, show and fancy Pelargoniums, tender Ferns, some plants of the new American Cherry Tomato, produced in bunches like Currants, the berries being nearly transparent, stove and greenhouse plants, succulents, &c., in great abundance.

Perhaps most striking of all was a long pit of considerable breadth, filled with a great number of specimen plants of variegated zonal Pelargoniums in the best possible condition, the leaves finely coloured and the plants in the finest health. Particularly noticeable for the rich beauty of the leaves were Prince of Wales, Mrs Tom Hood, Sultana Valide, and Sir Robert Napier. In the silver-edged section, Mabel Morris was very fine, having a striking carmine zone slightly shaded with dark; and in the gold and bronze section, Southern Belle, a fine variety, with a broad dark zone in a golden-leaf ground, was most engaging in appearance. Every good and striking variety appeared to be here; probably such a collection of plants could not be seen in any other nursery round London.

Out of doors the pits of bedding stuff were something remarkable, as they contained the plants ready for planting out at once, and which had been hardening off for some days past. There were thirty-four of these pits, each 33 feet long by 6 feet wide, completely filled with plants in 60-pots, each square foot containing twelve plants. A striking mass of yellow colouring was presented by a large batch of a variety of *Tagetes patula*, a capital selection from the double dwarf orange French Marigold, a plant used largely at the Crystal Palace for bedding purposes. During the summer months these shallow pits

are used for the purpose of growing Gourds, Indian Corn, Tomatoes, &c.

In the herbaceous ground a very large collection of herbaceous plants could be seen. It was computed that there were many thousands in pots, and they were clean and admirably arranged. Adjacent lands had as occupants forest and fruit trees, &c., and ground is continually being added for the growth of stock.

Close by the nursery is a sample-seed ground on an extensive scale, for the purpose of proving the growth, as well as the quality, of vegetable seeds. Nearly at all periods of the year this sample-ground would amply repay a visit, as there can always be found something to interest and instruct. One most interesting feature was the presence of large patches of all the various grasses and clovers; and advantage was being taken of a neighbouring sewer, for the sewage was being diverted to the sample-ground in order to furnish the means for experiments in growing crops by the application of sewage.

It may be added that all building-work, painting, and glazing, basket-making, &c., is done by Messrs Carter & Co.'s *employés*, there being nearly one hundred persons employed on the grounds at Perry Hill.

R. D.



TROPEOLUM SPECIOSUM.

TO THE EDITOR OF THE 'GARDENER.'

SIR,—I have been interested in the articles on *Tropæolum Speciosum* by your correspondents W. S. and R. F. I have seen this pretty plant in all its beauty on the "rock" and wind-raked terraces referred to. All I shall say regarding them is, that they are presided over by a gardener whose intelligence and determination make everything succeed he takes in hand.

R. F.'s beds I have often seen, and can assure W. S. they are all that could be desired. And this success has been obtained in a cold, damp, ungenial soil, which may account for the "bottoming of Pea-sticks." Some years ago the beauty of these beds, and the festoons of this *Tropæolum* on the front of R. F.'s cottage or miniature castle in which he resides, took my fancy so much that I desired roots and the proper treatment. I was kindly supplied with both, and set to planting in high spirits, but unfortunately I omitted the "Pea-stick bottoming." My beds went on very much as W. S. says they do for the first year or two, but after they seemed to have met my most sanguine expectations, the roots took to travelling from home through a grass border into a private house, of which they have taken entire possession, but the beds became so poor they had to be broken up. So the "beauty" is at present a fugitive with me—in fact, a weed. This is a wrinkle in its history your other correspondents have not touched on, so I send it you, in the hope it may be of service.

STONE BLOCKS FOR ORCHIDS.

I AM not aware that the acknowledged authorities on this beautiful family of plants, who have favoured us with a revelation of the secrets of their art in the successful culture of the various species of Orchids, have ever spoken of stone as suitable material on which to place those which are generally recommended to be placed on blocks of wood. Neither have I any recollection of ever having seen Epiphytes with a stone to feed upon. This material may, however, be used beyond the range of my observation. Be this as it may, my present object is not to recommend stone blocks as the best sort that can be used, nor to say that I have, from any lengthened experience, found any advantage in using stone instead of wooden blocks, but simply to state that about a month ago I had to look about for a few suitable blocks for Orchids, and could not conveniently find them; and as is often the case in gardening, where a way cannot be found it has to be made, and so a few soft freestone blocks were hewn into shape something like small sugar-loaves, and placed a few inches deep in pans filled with soft water. On one was placed a sickly plant of *Phalænopsis amabilis*, and on others plants of *Ærides Lobbiani* and *A. Dayanum*. The first named of these especially had not a fresh root, and just one leaf, when placed on the cone of stone. They were simply fixed in their places with a piece of matting, and a little fresh *Sphagnum* placed round their collars. The *Phalænopsis* has now three fine healthy leaves of a dark-green colour, and is rooting and growing vigorously, and clinging to the stone with immense roots, which are covered with a gelatinous substance, the sign of health. The same may be said of the *Ærides*.

The soft freestone, by capillary attraction, keeps itself always full of moisture, and it is, moreover, a good absorbent and conductor of heat; and, so far as my observation goes, it appears a material worthy the attention of Orchid-fanciers. Soft freestone can be cut into such a variety of shapes that a house of Orchids might be made to look much more picturesque than they are generally met with.

DRUMLANRIG GARDENS.

D. THOMSON.



HINTS FOR AMATEURS.—JULY.

MUCH of the work in the vegetable-garden at present will be, carrying out what could not be attended to last month—such as the planting out of Broccoli, Kale, Brussels Sprouts, Celery, Leeks, and many other kinds of vegetables, for supplying the table in autumn, winter, and spring. For autumn use a quick growth is desirable; but crops, espe-

cially Broccolis, which are expected to stand a severe winter, are safest when the growth is sturdy and only medium. And ground which is light and rich, and in good condition by having been well worked for other crops, may be cleared off and planted without turning it over. We have seen excellent Kale and Broccoli produced by this treatment. We have often practised this after Winter Spinach with good results; and some plant their Broccoli after Strawberries, only clearing the ground, and some time afterwards the whole surface is forked over, and manure applied if necessary. This is said to be a sure way of escaping "clubbing." But in old heavily-manured gardens we would use every means to keep grubs, &c., in check by using lime-water freely. While speaking of not breaking up ground at this season, we heard the other day from a nobleman's gardener that he had seen excellent crops of Winter Spinach grown on ground only cleared of weeds and the previous crop, the drills drawn, and the seed sown in the usual way. We recommend this "hint" to many who are never able to secure a crop of Winter Spinach. This vegetable often dies off at the neck, which may sometimes be attributed to rank manure being used immediately before planting. Our system of growing this useful vegetable is to trench deeply a piece of ground after Strawberries or Potatoes, using no manure except a little soot turned into the surface; and we find no difficulty in securing fine crops. We sow three times between the end of July and first week of September. In the south good Pease may be sown from the beginning to the middle of the month. Early kinds are most suitable. Little Gem, or some other early dwarf kind, may be sown on an early spot where it can be protected with hoops and mats in autumn. Early frost, succeeded by cold rains, puts an end to Pease in the midst of their bearing, while dwarf kinds protected may be kept on for some time. Stake growing crops before they fall over at the necks; and if the ground is poor and light, mulching and good soakings of manure-water should be liberally supplied, otherwise mildew and short supplies of good Pease may be expected. Strong-growing kinds should be topped if growing too freely. Celery which has been planted out for some time will take almost any quantity of water, but thorough soakings at longer intervals are preferable to frequent dribblings. Lettuce, American and Golden Cress, Radish, and Endive seed may be sown for autumn supply. Cool, well-moistened ground suits best, and often prevents the crops going to seed as soon as they come through the ground. Scarlet and French Beans should have the pods picked off before they show the seeds in them. Attention to this and plenty of water will keep up a supply much longer; but frequently sowing a small piece gives the least trouble, only ground cannot be spared in every garden. Now is a good time to sow a late

crop in the south ; but in more northern districts, where nights are cold at any period of the year, protection as recommended for dwarf Pease is necessary. We seldom ever did much with those sown after June, but have in Wiltshire, Suffolk, Berks, and Middlesex seen good crops from August sowings. Mild autumns have much to do with this. We often have a frame sown, so that late gatherings may be had. Turnips may be sown in quantity on firm ground. If the weather should be dry and hot, the drills should be well watered before the seed is cast in, and the whole space may require a soaking (with a rose on the pot) if rain does not fall. Potatoes require to be kept thoroughly clean, and if the young tubers are too near the surface a little earth should be drawn over them ; but we have long since lost faith in drawing earth up in sharp ridges to the stems of Potatoes or any other crops, except in wet low-lying localities. Cabbage which have been cut can be left to sprout. It is an old plan to give a good top-dressing of manure and plenty of water, and allow the Cabbage to remain for an autumn supply ; but where ground can be spared, planting frequently is most satisfactory. The middle of this month and next is usually considered a good time to sow (in the north) for winter and spring supplies, and those planted out now will come in useful through the autumn. Three weeks or so later (in each case) answers in the south. We sow from the middle of July to the end of August, which keeps up a supply all the season ; and a sowing in March and April will keep up a continued succession of young sweet heads. A sowing of Early Horn Carrots may be made now, if they are required for drawing young. Tomatoes require going over frequently, taking off useless growths. When they are kept dwarf, stopping the shoots above the flowers must be practised, but prevent them from being crowded. When the main shoot can be allowed to run, and the side shoots kept off, abundance of fine fruit can be had. Free quick growth gives the finest produce. Those grown in pots require mulching and manure-water. The flowers should be thinned when they are too thick. To prevent bad setting and deformed fruit, thinning is of great importance.

Attention to fruit-trees must now be given in earnest, especially where the trees are young and not come to the desired size and shape. Stop strong growths, and remove those not required. This is necessary for those on walls and standards both. The more attention given in the early stages of growth, the sooner will the trees be in a bearing state. It is desirable to get Pears, Apples, and Cherries studded with fruit-spurs. We have before hinted that some do nothing to their trees till the end of the season, and success is pretty sure ; but in these cases, wherever we have seen such trees, they have exhausted all

the soil within their reach, and are at a standstill after having covered a large surface; or when the trees are of a smaller size suitable for gardens, they have been lifted, root-pruned, and otherwise handled to promote fruitfulness, and then summer-pruning is not of so much consequence, except where tidiness is a consideration. We wish we could find time to do all our pruning in summer. Some stunted trees require all the growth they make to keep them in health; in such cases mulching and soakings of manure-water are of great service, or lift them at the proper season and place the roots in healthy soil. Cherries we find more difficult to renovate than any other trees. Pears on walls should have the shoots pulled off altogether where the spurs are already too thick. Sun and air are of great importance in preparing the trees for fruiting next year. All growths should be stopped by degrees, as great quantities of wood pulled off while the trees are in active growth is fatal to success. We prefer going over the upper parts, then the centres, and lastly along the bottom; the growths thus become equal. Some go over Pears and break the shoots half over, which answers pretty well; but the decaying leaves are untidy, and a harbour for earwigs, wood-lice, &c. Finer kinds of Apples and Cherries grown on walls require similar treatment to Pears. Morello Cherries do best when growth is medium, and a number of side shoots cut out yearly, and as many left (which have started from the main branches) to fill up the vacant space. Whatever is done now is so much towards reducing labour when the weather is cold. Plums, Peaches, and Apricots should be kept closely tied to the wall. In the north they seldom ripen their wood thoroughly; but we have seen in the south-west of England, Apricots and Plums growing far out from the walls, and bearing heavy crops of fine fruit—but locality makes all the difference. Where there is rank growth and little fruit on wall-trees, a little root-pruning at this season can be practised with the best results. As an example, we half lifted two Plums last season (Dovebank and Washington) which were all wood and leaves, and little fruit. The roots were replaced in healthy loam made firm; little more growth was made, and the few fruit ripened very well. By the end of October the leaves were turning yellow. We then lifted the other portion of the trees. They are now bearing good crops and looking exceedingly healthy. By this treatment no time is lost, as often occurs when the whole of the roots are lifted in early winter. Let grubs be picked off at once whenever they appear. Apricots are liable to their attacks. Hellebore powder we often use with excellent effect on wall-trees. Place 4 ounces in 2 or 3 gallons of water, thoroughly stir it, and apply with a syringe to the under sides of the leaves.

Roses will be tempted by good soakings of water. Guano or any

other kind of manure-water will help ready growers. We emptied a cesspool lately in which were the drainings from the stable-yard, and applied the thinnest part of the liquid to a long border of new Roses. To allow it to pass easily into the soil, two men made drills (as for Pease) all through the border, keeping clear of the roots ; the other men poured it into the drills, and when all was done the dry earth was levelled in to prevent evaporation, and now the border is thoroughly moist and the Roses growing rapidly. The remaining portion of the liquid was thrown into Celery-ridges among the manure, which was not very good, and the whole dug in. Suckers must be cut off clean as soon as they appear, and all dead flowers should be picked off. Water blooming plants in borders thoroughly when they require it, and stir with the hoe after the surface becomes dry. Regulate the growths of plants, to keep borders gay and neat. All decaying flowers and leaves should be cut off, and no weeds allowed to appear. Let trained Roses and other climbers be tied in their places to prevent breakage by wind. Dandelions and other weeds should not be allowed to seed in lawns ; they should be carefully taken out, and a little salt placed in the holes to prevent any of the roots left from growing. All the usual "keeping"—such as clipping of grass-edgings, mowing, rolling, &c.—should be kept up diligently, now that the ornamental grounds are becoming gay. Water Violets, and let Dahlias and Hollyhocks have plenty of manure-water. Stake them securely, and cut off any shoots which are crowding the plants. Propagate Pansies from side shoots ; the younger the cuttings the finer will be the plants. Propagate Pinks by cuttings, and layer Carnations and Picotees. For Pinks first prepare beds of sandy light soil, in which the pipings are placed, thoroughly watered, and hand-lights placed over them. When making pipings, take the shoots from round the bottoms of the stems. They should be about 2 inches long, and the lower leaves stripped off is all the preparation they require. They should be made firm when planted in the light rich soil. If shaded from sun, so much the better ; an old mat or any such material will answer if the position is exposed to sun. As the plants begin to show growth, begin to give air, and increase it gradually till they are all rooted. The shoots of Carnations and Picotees are sometimes propagated like Pinks, but with a little bottom-heat. The general way is to take a little of the soil away all round the plant and replace it with light sandy earth, raising it above the level of the surrounding soil. Cut the leaves all off the shoots, only leaving the upper ones (three or four). On the bottom side of the stem, about 3 inches from the top, cut a slit (sloping upwards) half through the shoot, passing the knife through the joint, doing this with care, not to sever the stem. Cut off the piece below the

joint outside and close up to it, then peg down the split joint, so that the shoot stands upright ; even the soil round the joint, and the whole is finished. Water when necessary till the layer makes roots. The pegs we use are either fern or bent pieces of willow. Auriculas, if they are in a frame facing the north, heavy rains kept off, the drainage clear, and all kept clean, will do well for the present. Let all plants be attended to liberally with water, air, and cleanliness, as directed last month. Chrysanthemums may be topped back for the last time. Young bushy tops may be layered into small pots, and grown on if small plants are wanted. Tie large plants out, and keep them sturdy. Propagate fancy and other Pelargoniums by placing the cuttings under hand-lights in sandy soil. When we lived with the late Mr Catleugh, many thousands of the above were propagated in the open ground annually for Covent Garden ; some of the more tender kinds were sheltered with a frame. Cut down all those that are done flowering. Zonals grown on liberally will take their place, and make a grand display for four months to come. Give manure-water to those which are flowering freely.

M. T.



PHYLLOXERA VASTATRIX.

WE are very sorry to learn that this most formidable of all the enemies of the Grape Vine has made its appearance in England. We were the first to call attention to it in this country as being prevalent on the Continent ; little did we then think that it was at our doors. We make the following extract from a letter addressed to us by a gentleman in Kent : “ My Vines have all grown well except two, a Mrs Pince’s Muscat and Meredith’s Alicant ; these did not move more than 2 or 3 inches, and I determined to take them up and examine the roots. Now, ‘tell it not in Gath,’ the roots were swarming with *Phylloxera vastatrix*, and no mistake ; there was also the winged kind. Your description in the May number of the ‘Gardener’ is very accurate. With a glass of good power you can see it in all its stages, but you can see it with the naked eye. It looks like grains of yellow sulphur in the crevices of the roots ; with a high power it resembles small yellow tortoises. It barks all the roots and destroys the Vine.” The writer farther expresses a fear that this pest is known to be in some nurseries, but is kept a secret. If so, no time should be lost in discovering which these are, and in getting it “stamped out,” to use a phrase only too familiar to us.

NEW PLANTS OF THE PAST MONTH.

DURING the months of May, June, and July, when the great shows are held in addition to the bi-monthly meetings of the Floral Committee, the rush of new plants is so great that it is difficult to preserve an unbroken record. For instance, at the first great show of the Royal Botanic Society *sixty-four* first-class certificates of merit were awarded to new plants; of these Mr W. Bull alone took twenty-seven, and Messrs Veitch & Sons nineteen. In addition, ten second-class certificates were also awarded. Nearly the whole of the subjects, however, had already been noticed in the columns of the 'Gardener.'

Of plants having undoubted claims to novelty and worth, the following have received first-class certificates: *Lælia purpurata alba*, a variety with pure white sepals and petals, and a lip faintly tinted and veined with pale rose, and stained with yellow at the base; to *Vriesia Glaziouana*, a noble and massive-looking Bromeliad, with broad erect glossy leaves recurved at the tip; to *Martinezia Lindeniana*, a very distinct Palm, with broad leaves split at the apex and jagged at the margin, and supported on glaucous stalks, furnished with long slender spines intertwined with shorter ones; to *Agave Verschaffeltiana*, a handsome dwarf species, with short broad leaves irregularly edged with spines; to *Begonia Sedeni*, one of the new Japanese species, with salmon-carmine flowers; to *Davallia Moorei*, a beautiful Fern, with handsome and graceful pale-green fronds; to *Croton Veitchii*, very handsomely variegated with creamy gold; to *Masdevallia coccinea*, with high-coloured flowers; and to a fine variety of *Miltonia spectabilis*, the flowers broadly flaked with pale rose, and coming into flower fully two months before *Spectabilis*;—all these having been exhibited by Messrs Veitch & Sons of Chelsea.

The same award was made to each of eight abnormal forms of *Scolopendrium*s, all varieties of *vulgare*, and exhibited by Mr E. J. Lowe, F.R.S., Highfield, Nottingham. Mr Lowe has obtained many new forms, and some of the above group are not the least curious and interesting of them. The same award was made to Mr Lowe for three new forms of *Athyrium filix-fœmina*, named severally *Rickeltsiæ*, *Kallistron*, and *Kalon*; and to Messrs Ivery & Sons, Dorking, for *Lastrea filix-mas cristata crispa*, a somewhat novel and taking form. Mr J. H. Ley, Croydon, received the same award for *Adiantum excisum multifidum*, var. *Leyii*, a singular crested form of this dwarf-growing species.

Mr B. S. Williams has received first-class certificates for *Lælia marginata*, a pale-flowered variety, with slight purple edges, but somewhat wanting in massiveness; for *Littonia modesta*, with orange-coloured flowers; and for *Calamus ciliatis*, a novel and elegant Palm. Messrs Rollisson & Son, Tooting, had a like award for *Epidendrum vitellinum*

major, an old plant, having been flowered by Messrs Loddiges some twenty-five years ago, but still rare, and having deep-shaded orange flowers.

Subsequently to this, Messrs Veitch & Sons received a first-class certificate for *Alocassia Sedeni*, a hybrid between *A. metallica* and *A. Lowi*, raised at the Chelsea Nurseries by Mr Dominy, and partaking a good deal of the character of the latter kind. Messrs Carter & Co., Holborn, received like awards for two handsome and strong-growing Ferns—viz., *Gymnogramma chrysophylla maxima*, a golden form of noble free growth; and *Gymnogramma calomelanos maxima*, a silver form, as free and handsome in growth as the foregoing: and W. Wilson Saunders, Esq., a similar award for a beautiful new species of a Grenadan *Acineta*, with large, waxy, clear yellow flowers, having an enclosed reddish-brown lip.

Turning away from these valuable but generally uninteresting plants, as far as the ordinary lovers of flowers are concerned, it is pleasant to turn to something having more popular, and at the same time charming, aspects of beauty. Foremost must be placed *Clematis Lady Londesborough*, another of Mr C. Noble's new varieties, and producing large showy flowers of a pale lilac tint. A first-class certificate was awarded to this, and also to a new variety of the *lanuginosa* type, named *Excelsior*, producing double flowers, the exterior florets being of a bluish-mauve hue, with a flame of brown along each, and the centre of the flower a tuft of small mauve-coloured florets, which came from Mr Thomas Cripps, Tunbridge Wells. The same award was made to *Pillar Rose Prince Leopold*, the exterior of the flowers dark flushed with purple, the centre bright crimson, from Mr William Paul, and scarcely worth the award made to it; to *Climbing Rose Duchesse de Mecklenburg*, with pale salmon rose-coloured flowers, and promising to be very useful, from J. H. Arkright, Esq., Hampton Court, Leominster; to *Hybrid Perpetual Rose Miss Ingram*, the flowers full and nicely expanded, and of a delicate blush white, with a tinge of deep blush in the centre; and to *Hybrid Perpetual Rose Mons. Woolfield*, bright pink suffused with rose in the centre, flowers full and very beautiful, both from Mr C. Turner, Slough, who also received the same award for *Azalea George Eyles*, soft pale salmon red, with bold and showy stout well-formed flowers. Mr Turner also received first-class certificates for the following large-flowering *Pelargoniums* of Mr Foster's raising—viz., *Maid of Honour*, *Corsair*, *Her Majesty*, and *Pretender*, all very fine; *Sultana*, *Agrippa*, *Heroine*, *Herald*, and *Admiration*: G. W. Hoyle, Esq., Reading, for *Bonnie Charlie*, *Gratulation*, and *Holkar*. The same award was also made to Mr Turner for the following splendid fancy *Pelargoniums*: *Marmion*, *East Lynne*,

Leotard, and Lady Carrington: a similar award for Bright Star, a very good and effective silver-edged variegated variety; and for White Clove, The Bride, with large and very full creamy-white flowers. Mr William Paul received a first-class certificate for silver-edged Pelargonium Waltham Bride, in the style of growth of Flower of the Day, and producing pure white flowers; Mr Harman, Denham, for variegated Ivy-leaved Pelargonium Mr Lambert, in the way of Duke of Edinburgh, but with more yellow in the variegation; Mr J. W. Winsett, Chelsea, for hybrid Ivy-leaved Pelargonium Willsii rosea, with flowers of a fine hue of rose, smooth, and quite as circular in shape as those of the ordinary zonal kinds; and Mr Sidney Ford, The Gardens, St Leonard's Lodge, Horsham, for Gem of the Season, a robust-growing Ivy-leaved variety, with round smooth flowers of a pale salmon-pink hue.

The following plants, representing the second degree of excellence, have been awarded second-class certificates: *Odontoglossum Reichenheimii*, a species with chocolate-spotted sepals and petals, and a rosy lip white towards the tip; and a dwarf *Sarracenia* somewhat resembling *S. flava*, but with less dilated pitchers and an erect lid, both from Messrs Veitch & Sons: *Rhododendron Beauty* from Messrs J. Standish & Co., Ascot, a charming hardy variety, producing fine stiff trusses, and rosy pink flowers of excellent form marked with a white bar on each lobe, and with buff spots on the upper one; *Azalea Reine Marie Henriette*, pale pink, with narrow margin of white, the upper segments heavily marked with pale scarlet, a fine and bold flower, but somewhat rough-looking, from Mr C. Turner, Slough; Zonal Pelargonium Lord Stanley, with vivid crimson flowers, from Messrs F. & A. Smith, Dulwich; and Pelargonium Pollie, one of the large-flowering class, having rich crimson flowers heavily overlaid with dark and rich dark top petals, dwarf-growing, and very free blooming; one of Mr Fosters' new flowers, and also exhibited by Mr C. Turner.

R. D.



ASPHALT WALKS.

NOTHING beats good gravel walks. They look better than any other when well kept, and "look" is not the least important consideration in a garden. They entail an amount of keeping, however, which could generally be well dispensed with, not to speak of the fact that gravel is not to be had in many parts of England except at an extravagant price. This is the case with ourselves, the nearest approach to gravel we can procure being a kind of shale out of the coal-pits, which, after being burnt and broken up, is of a light brick colour, assuming, after exposure to the weather, a more subdued and respectable grey tint, suiting pretty

well for pleasure-ground walks, where the traffic is light, but, from the softness of the material, wholly unfitted for the kitchen garden. In this department we are therefore obliged to resort to asphaltting, a plan which was favourably noticed by the Editor of the 'Gardener' some time ago in his notes on the gardens around Manchester, and which I propose to describe for the benefit of those who may be disposed to try it themselves, without going to the expense of employing regular asphalters, who in this district charge, I believe, from 8d. to 1s. per square yard, finding all the materials. Those, of course, who want a very neat job should employ them ; but for all practical purposes, good walks may be made by common labourers, as is done here. Asphalt walks are easily and cheaply made, are neat and durable, require no weeding, and, as far as my experience goes, are perfectly safe as regards injury to the roots of trees, &c., of which more anon. The materials—gas-tar and ashes—are easily procured, both being often to be had on the establishment. Ashes, at least, are always plentiful about a garden, and the tar is generally to be got cheap at the nearest gas-work.

Operations for asphaltting commence in winter. In wet or frosty weather, when other work cannot be carried on, the men are set in some out-of-the-way place to screen a quantity of ashes, using a 1-inch barred screen or sieve. The ashes are afterwards laid up in a heap ; the tar is brought and stored conveniently near ; and both are left till about the month of April, which is the best time for asphaltting, as there is less danger then of severe frosts occurring to break up the "cake" before it is thoroughly set, and it also gets time to harden before the heat of summer sets in.

Supposing, therefore, that the walks are cut out, the bottoms filled up with rough ashes or other material to within about 3 inches of the desired level, rolled firm, and the edges of stone or box laid, commence to prepare the asphalt as follows : A clean space having been made near the large heap of sifted ashes, two men set to with shovels, by taking about two barrowfuls from the heap and spreading it in a circle, about 3 or 4 inches deep, a little to one side. The tar is then lifted out of the tubs with a long-handled ladle, and poured over the ashes until they have just got sufficient to soak them without any going to waste by draining away. Then, much in the same way as a mason's labourer mixes mortar, the ashes are turned quickly over once or twice, the better to soak them, and again laid a little to one side as the foundation of the heap. Another similar quantity of ashes is again drawn from the large heap, soaked and turned in the same manner, and thrown on the top of the first ; and so on, until the whole is finished and thrown up in a conical heap. This is the first stage. The heap is now allowed to stand for about ten days, or longer if

the walks are not ready. By that time the ashes will have absorbed the tar thoroughly, and will appear to be much drier than at first, when the same operation of turning the heap by small quantities at a time, and soaking with tar, is again repeated as before, the object being to add just sufficient tar to make the ashes "sticky," without making a puddle of them. The evil of too much tar is, that the walks are soft, and the tar comes up to the surface in the rolling. For this reason it is better to leave the heap to drain for a week or so after the second turning also. This much being accomplished, and supposing all to have gone right, it will now be time to make the walks. Some fine morning, and when there is a prospect of the weather being dry for a day or two, all the barrows are put in action. Two men are set to fill, with strict injunctions to take the heap straight forward as it comes, as the ashes are always wettest in the centre of the heap and driest at the sides; and two are set to spread the asphalt on the walk as it arrives, about 3 inches deep, with iron rakes, using the back or teeth of the rake as may be needful, and taking care to have the walk slightly round in the middle. Putting on and spreading the asphalt does not take so long as might be imagined—six or eight men will cover 100 yards of walk, 6 feet broad, in about three hours. After spreading, the walk is then rolled with a heavy roller, two men pulling it slowly along, and one going behind sweeping the asphalt off with a besom as it sticks to the roller, whose duty it is also to wash the roller at the end of each journey. After being rolled for an hour or two until it is middling firm, the walk will be ready for sprinkling with the spar or gravel. Whatever material is used it should be got ready beforehand. We use Derbyshire spar mixed with shale, which gives the walks a clean smart appearance; but common river-gravel, put through a $\frac{1}{2}$ -inch sieve, would do well, and would give the appearance of a smoothly-rolled gravel walk. The spar is sprinkled on regularly with the hand, and just thick enough to hide the black surface of the asphalt, then rolled in with the roller until the walk is smooth and firm, when it is finished and fit for traffic. It should, however, be rolled for three or four mornings in succession, before the sun gets strong, in order to insure a firm "set."

The objections which have been urged against asphalt walks for gardens are, that in hot weather the tar smells disagreeably, and that it is injurious to box-edgings and the roots of trees. As regards the smell, it soon almost disappears, and even in very hot weather it is never so perceptible as to be in the least disagreeable. Box does not thrive very well if it has not got established before the walks are asphalted; but I could point to walks in the garden here where

it thrives as luxuriantly as could be desired, although they have been down in asphalt for years. We are, however, replacing the Box with imitation stone-edging, which is neat and substantial, and resists the hardest frost, harbours no vermin, saves much labour, and is in every way superior to Box for the kitchen-garden. It is manufactured in Hull, and sold at 8d. per yard. As far as my experience goes, I can certify that no harm need be apprehended to the roots of fruit-trees, as I have often seen suckers from their roots force their way through decayed or soft places in the asphalt in abundance; and I could at this moment show the roots of Vines in healthy action under walks that have been asphalted several times since the Vines were planted.

J. SIMPSON.



THE EDUCATION OF GARDENERS.

As one of the rising generation, I feel that it is my clear duty to write and thank Mr David Thomson for making known his views on so important a subject as that of education for those who devote their lives to horticulture, and I subscribe to every sentiment he has expressed.

In the present day, when every class capable of intelligent thinking demands greater facilities for enlightenment than were sought for in the past, it certainly seems a melancholy thing to see a gardener holding forth on behalf of ignorance; but bad as it looks, one not uncommonly meets with such a spectacle, and no influences seem sufficiently congenial to make some men become progressive in the noblest kind of development. It is, however, consoling to remember that no power, which those holding obsolete notions have liberty to wield, can do much permanent harm. Besides, it is quite certain that to be destitute of a cultivated understanding, if it ever was a blessing, is not so now in any sense, but is, on the contrary, rather a curse; and the individual who advocates the cause of stupidity in any form is most decidedly out of date.

It may be asked, How do the eulogists of mere practice say a young man ought to spend his spare time? Is it possible for them to declare that it is better for him to trifle away hours than to use them in acquiring a knowledge of the great principles on which his calling rests? Surely it is easy to see that the man who works by mere routine is placed daily—nay, hourly—at an immense disadvantage.

A plant is sent home from one of the Indian mountains, and an operator unable to tell in reality what physical geography means gets charge of it. Everybody knows that India, on the whole, has a reputation for being a warm place, and without further consideration the

unfortunate stranger is consigned to the stove and dies. But there is no need to multiply illustrations.

It is my firm conviction—a conclusion formed from a review of daily practical handwork during the last six years—that such a knowledge, let us say, of the functions which leaves perform in the vegetable economy as any intelligent young man may get by reading over the chapter devoted to the subject in Lindley's 'Theory and Practice of Horticulture' three or four times, with a week's interval between them, and thinking over in the mean time, will raise the value of his work, or at any rate of his capability for any gardening which is not mere drudgery, by at least ten per cent. This is the view which I trust is penetrating by slow degrees the minds of employers and employed, and which I think is the duty of all who wish well to the interests of gardening to enforce by precept and example at every practicable opportunity.

And as regards the range of subjects, I think that a gardener ought to take an unfeigned delight in becoming acquainted with every science that has a bearing on his profession.

From the making of effort in almost any direction the mind ought to receive tone and strength, just as the bodily condition is improved by reasonable exercise. Intercourse with the best authorities through books hardly ever fails to result profitably, and of course no honest or truly earnest man will let study interfere with the right performance of any portion of actual duty. Further, a very powerful instrument, known as hunger, urges most men, even those of an indolent disposition, into a state of activity; and as no gardener has yet learned the famous trick of economy the man wanted to teach his horse, professionals are pretty certain to keep on doing, however much they may neglect thinking.

J. D.



PARIS FLOWER-SHOW.

THIS exhibition, which opened on the 18th May and extended over a week, was held in the Palais de l'Industrie, and as the French system of showing is so very different to what is seen in this country, perhaps a few remarks on the above may be interesting to the readers of the 'Gardener' who have not had an opportunity of witnessing a Parisian flower-show. Wherever an exhibition is to be held, either in or about Paris, the ground is carefully measured and laid off in the style of a flower-garden, with broad walks intersecting, the figures being allotted to the different exhibitors according to the space they may require. In the flower department the centre of the figure is generally filled with fine foliage-plants, edged with dwarf Azaleas, Geraniums, Coleuses, &c.; the pots plunged entirely out of sight often leads the uninitiated to believe that the plants are permanently bedded out. Fruit-trees, again, are shown in different modes of training—hori-

zontal, fan, and pyramidal; this in itself is very useful, and seems to attract considerable attention. The gold medal for a collection of Azaleas was awarded to M. Margottin for a most effective contribution of about thirty varieties, all standards, the stems varying from 1½ to 2 feet high, bearing flat-trained heads. Although this mode of training is not exactly in keeping with our English ideas of what an exhibition Azalea should be, still when placed in rows or massed together, and all of a uniform height, the effect produced is very striking.

M. Bleu put up a group of beautiful Caladiums, comprising many magnificent seedlings not yet in commerce. Particularly may be mentioned Barillet, rich scarlet-crimson centre and veins, pale-green edging; Onslow, large bronzy-crimson centre and veins, with green edge, the leaf covered with large rose-coloured spots, rendering it very attractive. Amongst named varieties now in trade the following will prove valuable additions to any collection: Meyerbeer, in the way of Belleymeii, but having dark bronzy-crimson centre and veins; Max Kolb, light-green ground, pale centre, heavily spotted with dark bronzy-crimson; Alfred Bleu, rich green leaf, with pure white spots and flesh-coloured centre. Imperatrice Eugenie, glaucous green, with elegant violet-rose centre; Dr Lindley, crimson centre, the green ground marked with rose blotches; Reine Victoria, style of Belleymeii, green veins and margin, spotted or marbled with crimson—this variety, along with Dr Lindley, received first-class certificates in London last season.

An attractive feature of the show was a large and beautifully flowered collection of annuals grown in pots from Messrs Vilmorin, Andrieux, & Co. The various colours blended together had a very pleasing effect. It is to be regretted that this lovely class of flowers receive so little attention, and are so seldom seen at our flower-shows.

M. Creste received a silver medal for a group of dwarf-grown Mignonette; this was remarkably well done in 6-inch pots, each averaging between fifteen and twenty heads of bloom.

Messrs Downie, Laird, & Laing, Edinburgh and London, exhibited new Coleuses, for which they were awarded the large silver medal. The finest in this lot were Albert Victor, Princess Royal, Baroness Rothschild, &c. Also silver medal for their new gold and bronze Geraniums Crown Prince, Prima Donna, J. W. Morris, and Imperatrice Eugenie.

The medal of honour given by the city of Paris for the best collection of spotted Pelargoniums was awarded to M. Dufoy, with a superb lot of about fifty varieties. These were very tastefully arranged, and formed one of the principal attractions of the show.

Fancy Pansies were numerous and well flowered in pots. The main object being brilliant and effective colours, fine forms and smooth edges seem to be disregarded.

Magnificent foliage-plants were exhibited by various growers, among which we noticed fine specimens of *Cycas revoluta*, *Corypha Australis*, *Cycas circinalis*, *Latania Bourbonica*, &c.; also good examples of the Royal Horticultural Society's Coleuses of 1868.

In the afternoon the exhibition was honoured with a visit from the Emperor and Empress, who seemed to take a lively interest in the various articles brought forward for exhibition.



HORTICULTURAL EXHIBITIONS.

CRYSTAL PALACE.—In the order of dates, the next great exhibition in the London district took place at the Crystal Palace, Sydenham, on Saturday the 15th of May. There was a falling off in some things—probably the frequency with which shows are held at this time of the year would tend to produce this. Then the great size of the building assists not only to dwarf things almost to comparative insignificance, but those at all defective have their defects brought out very prominently indeed. True it is that awnings are stretched across the naves of the building and those parts of the centre transept in which the show is held; but these fail to produce the desired effect, while on a hot summer day the light above them is very glaring. Still the Crystal Palace is a place of favourite resort, and thousands of persons go there to visit the flower-shows, and appear to be delighted with them.

The collections of stove and greenhouse plants in flower were very numerous, the specimens on the whole very good and in excellent bloom, but the kinds almost, if not quite, the same as last year. Mr W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was most deservedly first in the class for sixteen, with, among others, beautifully grown and flowered specimens of *Eriostemon pulchellum* and *neriifolium*, *Epacris miniata splendens*, *Ixora coccinea*, *Pimelea spectabilis rosea*, *Adenandra fragrans*, *Chorozema varium nanum*, *Acrophylllum venosum*, *Clerodendron Thomsonæ Balfourii*, *Azalea Iveryana*, *Pimelea mirabilis*, and *Polygala Dalmaisiana* not fully out. Mr Peed, gardener to Mrs Tredwell, Lower Norwood, was second with *Tetratheca ericæfolia*, *Acrophylllum venosum*, *Leschenaultia formosa*, of which the scarlet flowers made a pleasing variety; fine plants of *Erica Cavendishii* and *ventricosa magnifica*, a large *Genetyllis Hookeri*, *Eriostemon buxifolium* and *neriifolium*, *Allamanda grandiflora*, not fully out, but which will be very fine; *Azaleas*, &c. Mr Wheeler, gardener to J. Philpott, Esq., Stamford Hill, and Mr Kemp, gardener to the Duke of Northumberland, Albury Park, Dorking, were third and fourth. In the nursery-men's class for ten, Mrs Glendinning & Sons of the Chiswick Nurseries were first with an excellent collection, most noticeable in which were a balloon-trained *Kennedya inophylla floribunda*, *Stephanotis floribunda*, *Pimelea spectabilis*, *Aphelexis macrantha purpurea*, and *Eriostemon buxifolium*. Messrs Jackson & Son, Kingston, were second; Mr Williams, Holloway, third. In the corresponding class for amateurs the prizes went to Mr Wilkie; Mr Donald, gardener to J. G. Barclay, Esq., Leyton; Mr Carr, gardener to P. L. Hinds, Esq., Byfleet Lodge; and Mr Peed, an extra prize being awarded to Mr Kemp. Among their collections was a splendid plant of *Medinilla magnifica* from Mr Donald, *Genetyllis tulipifera* and *Hookeri*, *Dracophyllum gracile*, *Chorozemas*, *Rhynchospermum jasminoides*, *Clerodendron Thomsonæ*, *Boronia tetrandra*, the pretty Rose-flowered *Adenandra fragrans*, *Epacris*, *Azaleas*, and *Ericas*. In the amateurs' class for six, Mr Ward, gardener to F. G. Wilkins, Esq., Leyton, was first with a fine plant of *Chorozema Chandleri* 4 feet in diameter, *Clerodendron Thomsonæ Balfourii*, very fine; *Stephanotis floribunda*, large, and in beautiful condition; *Erica Cavendishii*, *Aphelexis macrantha purpurea*, and a rather small plant of *Genetyllis tulipifera*. Mr Wright, gardener to A. C. Roberts, Esq., Avenue Road, Regent's Park, was second with a good collection; Mr Wilkie, and Mr Wheeler, gardener to Sir F. Goldsmid, Bart., being third and fourth.

Mixed collections of flowering and fine-foliaged plants, though good, were not remarkable. Mr Laing, gardener to P. W. Flowers, Esq., Furze Down, Tooting

Common, was first for twelve, with a collection in which were good examples of *Dracæna indivisa*, *Yucca aloifolia variegata*, *Dasylirion longifolium*, *Pandanus ornatus*, *Dicksonia antarctica*, *Aphelexis macrantha purpurea*, *Ixora coccinea*, *Erica ventricosa coccinea*, and a yellow-flowered *Mahernia*, which, though free-flowering, has rather a weedy appearance. Mr Young, gardener to W. H. Stone, Esq., Leigh Park, Havant, was second with a good collection; and equal third prizes were awarded to Mr Foreman, gardener to G. Maule, Esq., Denmark Hill, and Mr Gell, gardener to Mrs Beaufoy, South Lambeth. The former had a fine *Anthurium Scherzerianum*, and the latter fine specimens of *Sanchezia nobilis variegata* and *Pandanus elegantissimus*. For collections of six, Mr Wilkie was first, Mr Peed second, and Mr Carr third. Mr Young and Mr Woodward had also good collections. Among the plants shown were good specimens of *Rhododendron Countess of Haddington*, *Erica insignis* and *Spenceriana*, *Dracophyllum gracile*, *Leptopteris superba*, *Zamia Lehmanni*, *Crotons*, *Alocasia metallica*, *Maranta Veitchii*, and *Pandanus javanicus variegatus*.

There was an extensive display of Heaths, and many of the specimens were all that could be desired, though, as a whole, the show of these plants appeared less effective than usual. The most conspicuous for their excellence were *Victoria*, *Ventricosa* of different varieties, *Perspicua nana*, *Beaumontiana*, *Alberti*, *Candidissima*, *Tricolor elegans*, *Massoni major*, *Eassoniana*, *Tortulæflora*, *Aristata major*, and *Candolleana*. Mr Rhodes, Messrs Jackson, and Mr Morse among nurserymen, and Messrs Ward, Wheeler, and Kemp among amateurs, took the prizes for eight kinds. Those for six kinds went to Messrs Peed, Ward, Carr, and Wheeler.

Azaleas, as already remarked, were not equal to what they were at previous shows; exception must, however, be made of the magnificent plants from Mr Carson, gardener to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, who was first for eight. These consisted of *Triumphans*, *Model*, *Murrayana*, *Formosa*, the yellow *Sinensis*, *Exquisite*, *Stanleyana*, and *Criterion*. Mr Wheeler, gardener to Sir F. H. Goldsmid, Bart., and Mr Gell, gardener to Mrs Beaufoy, were second and third, with very good specimens of *Apollo*, *Violacea superba*, *Roi Leopold*, *Iveryana*, *Mrs Fry*, and other kinds. Among nurserymen the prizes for eight were taken by Mr Williams, Mr Turner, and Mr Rhodes; and for six, by Mr Williams, Mrs Glendinning & Sons, Messrs Dobson, and Mr Rhodes. In the amateurs' class for six, Mr Chapman was first with excellent bushy plants; Mr Wilkie, Mr Woodward, and Mr Wheeler, Regent's Park, taking the remaining prizes.

Of Orchids there was but a small show, though some of the specimens were very good. Mr Young, gardener to W. H. Stone, Esq., M.P., Leigh Park, Havant, was first for twenty with a good collection, in which we noticed *Cypripedium Lowii*, fine *Vandas*, especially two varieties of *Vanda tricolor*, *Phalænopsis amabilis* and *Schilleriana*, the latter with a fine branching spike 3 feet in length; *Aerides Fieldingii* and *odoratum*, a very fine *Cattleya Mossiæ*, *Oncidium sphacelatum*, and *O. pulverulentum*. Mr Peed, who was second in the same class, had a fine *Oncidium ampliatus majus*, *Vanda tricolor*, *Dendrobium chrysotoxum*, &c. In the nurserymen's class for ten, Mr Williams took the first prize with a splendid plant of *Aerides virens*, not, however, in fine bloom, good *Vandas* and *Cypripediums*, a finely-coloured *Cattleya superba*, *Anguloa uniflora*, and others. The best collection shown, however, was that which was first in the class for twelve, and which came from Mr Wilson, gardener to W. Marshall, Esq. of Enfield, who had beautiful examples of *Odontoglossum Alexandræ*, *Oncidium serratum*, *Cypripedium villosum*, *Odontoglossum luteo-purpureum*, *Lycaste Skinneri*, *Cypripedium caudatum* with nine flowers, and petals upwards of 2 feet long, *Lælia grandis*, a

Stanhopea, said to be new, with cream-coloured flowers, *Aerides crispum*, and *Trichopilia crispa*. Mr Eckford, gardener to the Earl of Radnor, Coleshill, was second in the same class. His specimens of *Saccolabium guttatum*, *retusum*, and *præmorsum* were very fine, especially the last, which had eight spikes, two of which were of great beauty.

Roses were not shown so numerous as might have been expected, nor were some of the flowers exhibited so fresh as could be wished for; nevertheless, in Messrs Paul & Son's collection of ten, which took the first prize, there was a magnificent specimen of *Victor Verdier*, and good examples of *John Hopper*, *Lord Clyde*, and *Madame Margottin*. Mr Turner, who took the second prize, had some well-grown and beautifully-flowered specimens of *Charles Rouillard*, *Miss Ingram*, *Clotilde Roland*, and *Reine du Midi*. For twelve varieties in 8-inch pots, Mr Turner and Messrs Paul & Son were placed equal first. The latter firm also contributed a large miscellaneous collection, which mainly consisted of the well-known kinds.

Pelargoniums, though few, were in fair condition. Messrs Dobson & Sons, Isleworth, were the only exhibitors in the nurserymen's classes, and received the first prizes in both instances; their specimens of *Maid of Honour*, *Marksman*, *Charles Turner*, *Statesman*, and *Beacon*, and (among Fancies) of *Lucy*, *Tormentor*, *Godfrey*, and *Roi des Fantasies*, were especially well grown and abundantly flowered. In the amateurs' class for twelve, Mr Ward, gardener to F. G. Wilkins, Esq., exhibited some very large and well-bloomed specimens, of which the following were particularly showy: *Desdemona*, *Sir Colin Campbell*, *Lilacina*, *Garibaldi*, *Etna*, and *Mademoiselle Patti*. For six Fancies in 8-inch pots, Mr D. Donald, gardener to J. G. Barclay, Esq., came first with a very good collection; and the third was awarded to Mr W. Foreman.

The show of bouquets, which formed one of the principal features of the exhibition, did not produce such an amount of competition as was expected, nevertheless there were a few tastefully-arranged groups of three, consisting of a vase bouquet, a bridal bouquet, and one suitable for the ball-room. Those shown by Mr W. Howard, gardener to J. Brand, Esq., Balham, took the first prize; Mr Dickson, Covent Garden, who is an artist in the manufacture of bouquets, came in second, with fine examples of taste and skill in arrangement; Mr F. Perkins of Leamington was third, M. Van der Driessche, Leys, Ghent, being awarded a special prize. Single bouquets were exhibited by Messrs Lucking Brothers, Westbourne Park; Mr F. Perkins, Leamington; and M. Van der Driessche, Leys, Ghent, who carried off the prizes in the order in which their names are mentioned. Some of these were tolerably effective, but nothing was shown of striking merit.

ROYAL BOTANIC SOCIETY, May 19.—There is no show held in London or near it that can compete with this for general effect, and those are to be envied who are privileged to look upon it for the first time. There is always a beautiful freshness about it, and the arrangement of the tent gives pleasant aspects of light and shade, the glare of the flowers being nicely toned down by the more sober garb of the foliaged plants.

In the amateurs' class for ten stove and greenhouse plants, Mr W. Chapman, gardener to J. Spode, Esq., Rugeley, furnished splendid plants of *Ixora coccinea*, *Erica ventricosa coccinea minor*, &c. Mr Wilkie had a grand specimen of *Medinilla magnifica*, *Pimelea mirabilis*, and *Dracophyllum gracile*, finely flowered. From Mr J. Ward, gardener to F. G. Wilkins, Esq., came a well-grown collection, in which *Tremandra ericæfolia*, *Clerodendron Balfourianum*, *Stephanotis*

floribunda, Ericas—tricolor, elegans, and Cavendishiana—were in first-rate condition; as also were specimens of *Pimelea Hendersoni*, *Azalea Criterion*, and *Eriostemon buxifolium*, contributed by Mr B. Peed. In the corresponding class for nurserymen, Messrs Glendinning & Sons, Messrs Jackson & Son, Kingston; Mr B. S. Williams and Mr O. Rhodes, were the prize-takers—each furnishing fine groups of admirably-grown plants. Mr D. Donald exhibited some grand specimens in the class for six, amongst which *Adenandra fragrans*, *Clerodendron Thomsonæ*, and a large well-flowered *Epacris grandiflora*, were very conspicuous. *Azaleas*, *Ericas*, and *Epacris miniata splendens*, in good condition, were also contributed by Mr G. Wheeler; and a very neat group came from Mr W. Kemp. Fine-foliage and other flowering plants were furnished by Mr Fairbairn, Syon House Gardens, who had a well-grown specimen of *Maranta rosea picta*, with very clear markings; a very large plant of *Thamnopteris nidus*, *Cocos nucifera*, and the brownish-yellow flowered *Oncidium altissimum*. Mr A. Wright contributed good plants of *Pandanus ornatus* and *P. javanicus variegatus*; a remarkably well-grown specimen of *Phænocoma prolifera* was shown in the collection sent by Mr J. Carr; and Mr D. Donald furnished good specimens of *Dipladenia amabilis*, a fine specimen of *Dracæna lineata*, *Clerodendron Balfourianum*, and a well-grown plant of *Cordyline indivisa*. Mr Peed, Mr G. Young, and Mr Wilkie also contributed very effective groups.

Cape Heaths were shown in beautiful condition in the nurserymen's class by Mr B. S. Williams, Messrs Jackson & Son, and Mr Rhodes; and in the class for amateurs very nice groups were furnished by Mr J. Ward, Messrs J. & G. Wheeler, and Mr Peed.

Azaleas were shown in very fair condition, but not nearly so good as on previous occasions. Mrs Glendinning & Sons contributed the best eight in the nurserymen's class. Mr B. S. Williams furnished some nicely-flowered specimens, and took the second prize. Mr Turner and Mr Rhodes were also competitors, and received the other prizes. In the amateurs' class for eight, Mr Wilkie, Addison Road, Kensington, came first, with some well-grown and nicely-flowered specimens, of which *Elegans* superb and *Magnificent* were especially good, as also were *Mars*, *Delecta*, and *Criterion*, furnished by Mr Chapman.

Of Orchids there was a good bank of well-grown plants. The best six in the nurserymen's class came from Mr B. S. Williams, who had a grand specimen of *Dendrobium densiflorum*, having six spikes of bright orange flowers; a fine *Cypripedium barbatum superbum*, and the bright yellow *Oncidium ampliatus majus*. Mr Bull, who was second, contributed a good plant of *Angræcum sesquipedale*, some nicely-flowered *Vandas*, and *Cattleya Mossiæ*, finely coloured. In the corresponding class for amateurs, Mr J. Ward, gardener to F. G. Wilkins, Esq., Leyton, had a magnificent plant of the free-flowering *Oncidium sphacelatum*, the prettily-fringed *Oncidium serratum*, a fine spike; Mr Hill, gardener to R. Hanbury, Esq., Poles, Ware, Herts, furnished a fine *Lælia purpurata*, with eleven very large flowers, and *Cattleya lobata*, in good condition; Mr A. Wright sent *Odontoglossum hastilabium*, *Aerides odoratum*, and *Trichopilia suavis*, all nicely bloomed. In Mr B. Peed's collection of eight were some well-grown and beautifully-flowered *Vandas*, &c., and *Oncidium ampliatus majus*, with six fine spikes. In this class Mr Eckford, gardener to the Earl of Radnor, also furnished some charmingly-flowered specimens of *Saccolabiums*, *Oncidiums*, and *Cattleyas*, &c.; while from Mr G. Young, gardener to W. H. Stone, Esq., came a good collection, like that exhibited by him at the Crystal Palace; and a very interesting group was furnished by Mr J. Wheeler, gardener to J. Phillpott, Esq., Stamford Hill.

Ferns, though not numerous exhibited, were shown in good condition by Mr

W. Taylor, gardener to J. Yates, Esq., Highgate, who had beautiful specimens of *Cyathea excelsa* and *medullaris*, *Gymnogramma Mertensii*, *Davallia bullata*, and *Dicksonia antarctica*; by Mr Wilkie, who had *Lomaria nuda*, *Cyathea dealbata*, and *Gleichenia semivestita*, a fine and exceedingly well-grown specimen of which was also shown by Mr A. Wright, who furnished a very fine group. In addition to the Ferns exhibited, Mr Parsons, gardener to R. Attenborough, Esq., Acton Green, contributed an admirably-grown group of *Lycopodiums*.

Of *Pelargoniums*, which formed one of the most attractive features of the show, admirable collections were shown both in the amateurs' and nurserymen's classes. In the former class especially, the nine furnished by Mr J. Ward, gardener to F. G. Wilkins, Esq., which took the first prize, were remarkably well grown, the following sorts being the most effective: *Rose Celestial*, about 4 feet through, literally covered with bloom; *Lilacina*, *Mademoiselle Patti*, *Conqueror*, and *Caractacus*. Mr D. Windsor took the second prize with some very well-grown specimens. For six Fancies, Mr Windsor was first with a finely-flowered collection, and Mr D. Donald second with good specimens of the usual show varieties. Messrs Dobson & Sons took the leading prizes in the nurserymen's classes, with some admirably-grown specimens, Messrs Glendinning & Sons of Chiswick coming in second.

Roses were shown in a very good and fresh condition by Mr Turner and Mr Wm. Paul, who took the prizes in the nurserymen's class for 10-inch pots, not larger than 13 inches in diameter. In Mr Turner's collection were magnificently-flowered specimens of *Vicomte Vigier*, *John Hopper*, *Paul Perras*, *Maréchal Vaillant*, *Souvenir de la Malmaison*, and *Charles Lawson*, a grand specimen, having about fifty nearly-expanded blooms. Mr Wm. Paul furnished admirable examples of *Madame Charles Wood*, *Jean Goujon*, *Louise Odier*, *Madame Willermoz*, *Victor Verdier*, and *Paul Ricaut*. Mr J. Terry, gardener to A. G. Puller, Esq., Youngsbury, Ware, Herts; and Mr T. Godfrey, gardener to J. Anderson, Esq., Inkerwyke House, Wraysbury, also contributed very nice specimens in the class for six. Charming collections were also exhibited by Mr W. Paul, who had *Rev. H. Dombrain*, *Le Rhone*, *Madame Fillion*, and *Alba rosea*, all in good condition, and by Messrs Paul & Son, who furnished in a very nice lot a specimen of *Michel Bonnet*, a fine-shaped bright pink flower. The latter firm also contributed ten boxes, filled with a rich and varied collection of cut Roses, of mostly well-known kinds.

SPECIAL PRIZE AND PELARGONIUM SHOW, SOUTH KENSINGTON, May 22d.—Although the leading features of the show were the Zonal *Pelargoniums* of various sections, and the Roses which are above reported on, there was a large and very interesting display of other plants, including numerous novelties submitted to the Floral Committee.

The President's prize for the best nine *Azaleas* was taken by Mrs Glendinning & Sons of the Chiswick Nurseries, with large plants in fine bloom, among which were *Extrani*, *Optima*, *Madame Miellez*, *Iveryana*, *Eulalie*, *Duke of Devonshire*, and *Petuniæflora*. Extra prizes were awarded to Messrs Lee of Hammersmith, and Mr Wilkie, gardener at Oak Lodge, Addison Road, Kensington, for well-bloomed specimens of *Broughtoni*, *Coronata*, *Elegans superb*, *Magnificent*, *Duke of Devonshire*, and other well-known sorts.

Of groups of fine-foliaged and flowering plants, the best came from Mr Turner of Slough. In this there was a fine specimen of *Charles Lawson Rose*, but far from equal to the dazzling plant of the same variety in the collection of nine, with which he gained the President's prize. He had also *Iveryana Improved Azalea* in fine bloom, and among fine-foliaged plants large specimens of *Aralia palmata*, *Pandanus utilis*, and *Dracæna australis*. Mrs Glendinning & Sons were second, and

had a fine bushy *Pimelea spectabilis*, and a handsome *Theophrasta imperialis*. Mr Wheeler, gardener to Sir F. Goldsmid, Bart., M.P., Regent's Park, and Mr Wilkie, also exhibited neat groups in this and the class for six flowering stove and greenhouse plants, in which they were respectively first and second.

The Silver Flora Medal for six new plants sent out in 1867 or 1868, was gained by Messrs Veitch with *Dendrobium Bensoniæ*, a beautiful Moulmein species with white flowers, having an orange lip; *Retinospora filicoides*; *Sanchezia nobilis variegata*, one of the most effective of variegated plants; the true *Vanda insignis*, not that which has hitherto passed under that name; *Dracæna regina*, a handsome broad-leaved variegated kind; and *Alocasia Jenningsii*, a fine specimen, with the black blotches contrasting beautifully with the green ground colour. The same firm also took the Bronze Flora Medal, or second prize, with a beautiful pan of *Abutilon Thompsoni*, *Begonia Boliviensis*, *Nepenthes hybrida*, *Acalypha tricolor*, a fine addition to ornamental-foliaged plants, and of which a specimen was exhibited in one collection of these at the last Regent's Park Show; *Phormium Colensoi variegatum*, with narrow leaves edged with white, becoming red at the base; and the pretty small-growing *Davallia parvula*.

Messrs Veitch were again first and second for six new plants sent out in 1869. Their first-prize collection consisted of *Croton maximum*, beautifully veined and spotted with yellow, very handsome; *Maranta tubispatha*, very striking by its small regularly-placed reddish chocolate blotches; *Davallia hemiptera*, a charming little dark green Fern; *Dracæna Macleayi*, with dark bronzy foliage; *D. nigro-rubra*, with red and bronze leaves; and *Croton Hillianum*, with foliage richly marked with orange and crimson. Messrs Veitch's second-prize collection consisted of *Darwinia fimbriata*, with pleasing white flowers tinged with pink on the outside of the bells—this received a second-class certificate, a first being given to *Leptopteris Wilksiana*; *Dieffenbachia Wallisii*, with a white band along the midrib, and white markings; *Maranta princeps*, and *Chimboracensis*, two handsomely-marked kinds, especially the latter; and *Croton aucubæfolium*, with the leaves marked with small yellow blotches.

Of a new plant shown for the first time in flower in Great Britain there was only one exhibition, that of Messrs Veitch, who took the first prize, as well as a first-class certificate from the Floral Committee, for *Dendrobium Jamesianum*, with large white and orange flowers, which, when it comes to be grown to a larger size, will no doubt be a handsome addition to this highly ornamental genus.

The first prize for a new ornamental-foliaged plant, shown for the first time in Great Britain, was also taken by Messrs Veitch with *Croton Hookeri*, a magnificent plant from the New Hebrides, with the leaves of a most beautiful clear yellow in the centre, edged with green. The second prize was likewise taken by Messrs Veitch with *Dracæna magnifica*, from the Solomon Isles, with very broad brownish-red leaves. Both the above plants received first-class certificates, as also *Canna Smithii*, having yellow variegated leaves, from Mr Wimsett. *Dracæna albicans*, from Messrs Veitch, in which the leaves are variegated with white, was also shown in this class, but it was not equal to *D. Regina*; also *Alocasia Sedeni*, a hybrid raised between *A. Lowii* and *A. metallica*, having large handsome leaves of a metallic greyish green on the upper side, and purplish crimson on the reverse. A first-class certificate was awarded to the same firm for *Dracæna Chelsoni*, from Banks Island, with bronze leaves edged with rich rosy red.

Messrs Veitch were again first in the class for a new garden seedling in flower, with *Rhododendron Lady Rolle*, a flower of fine outline, white tinged with blush, with a blotch of cinnamon spots in the upper petals. Mr Wimsett was second with *Pelargonium Willsii rosea*, one of the new hybrids between the Ivy-leaved

and Zonal sections, having large broad leaves resembling those of the former, and deep Rose-coloured flowers, with petals of fine outline. Both the above plants received first-class certificates from the Floral Committee. Mr Wimsett also exhibited *Willisii* with handsome foliage, but the flowers not so large nor of such good form; and Mr Groom, of Ipswich, had also a hybrid Ivy-leaf, but not equal to either of the preceding.

Coming now to the portion of the Exhibition devoted to the Pelargoniums, it may be observed that for two years past an annual exhibition of variegated Pelargoniums has been held at the end of the summer, the prizes being subscribed by raisers and growers of the same. This year the show has been held much earlier than usual, and that for a very intelligible and substantial reason—namely, that some of the variegated Pelargoniums are in much better condition at one season of the year than at another, consequently those which colour well in the early months of the year would be getting out of condition at the end of the summer. There were classes for the best example of each of the many divisions into which Pelargoniums are now arranged—the condition being that three plants of each variety be shown, in order to exclude seedling plants. In the class for the best golden-edged variegated Zonal Pelargoniums, thirty-six varieties were staged; Messrs E. G. Henderson & Sons alone staging twenty-two varieties. This firm took the first prize with *Peter Grieve*, a fine habited variety, raised by Mr Peter Grieve, The Gardens, Culford Hall, Bury St Edmunds, who has not only raised some of the best kinds now in cultivation, but has also published an excellent little treatise on the cultivation of the variegated Zonal Pelargonium, which amateur growers especially should consult. Mr C. Turner, Slough, and Messrs Carter & Co., London, were placed equal second—the former with *Mrs Headley*, the latter with *Prince of Wales*; between these two varieties as exhibited there was clearly no perceptible difference. Mr Turner was third with *Achievement*. One could not help being struck with the sorry appearance presented by some of the finely-marked kinds that had the appearance of being almost perfect when shown as seedlings. Making certain deductions for the deterioration invariably observed in plants when propagated from the seedling, as well as some of them being out of condition at this season of the year, it did yet appear that these newer kinds of variegated Pelargoniums are sadly over-propagated in the great haste to obtain stock, to the manifest detriment of the plants. Assuming what is regarded as an actual fact by botanists, that variegation is a diseased condition, it is easy to perceive how excessive propagation would aggravate this inherent weakness, and reduce the plants to something approaching a pitiable condition. Many of the newer kinds will not be in possession of their true vigour and robustness of character for a few years to come; and till that condition is reached, if they should not be blotted out of commerce, will bear the character of being unworthy of cultivation.

Briefly, it may be stated, that the best Variegated Zonals with silver edges were *Excellent* and *Lady B. Bridges*, both shown by Mr C. Turner; and *Mrs Colonel Wilkinson*, by Mr Coomber, Highgate—the awards being given in the order of the names. These promise to be fine additions to this class, having excellent habits, and being finely coloured. The last named has the fault of the leaves being too concave, and thus presenting a cupped appearance and a rough exterior, with the additional fault of holding water. The foregoing classes represent what are popularly, but erroneously, termed “Tricolor Geraniums.”

The Gold and Bronze Zonals—or what are generally termed “Bicolors”—were grand; and Messrs Downie, Laird, & Laing, of London and Edinburgh, who are clean ahead of any other raiser with these fine varieties, were first, second, and third, with *J. W. Morris*, *Red Ring*, and *Imperatrice Eugenie*. The leaves of the

two former are almost perfect in shape, and have lively and regular reddish-chocolate zones on a golden-leaf ground ; these are quite distinct from each other. The third is a very robust-growing and finely-marked kind, with large and somewhat irregular leaves. Of self-coloured leaved varieties—*i.e.*, those of the Cloth-of-Gold section—the new kinds shown were very poor ; in fact, there is abundant room for improvement here. Of the Silver-edged section—*viz.*, green leaves, edged cream or white—that veteran florist, Mr Turner of Slough, set at defiance all comers, being first with Bright Star, second with May Queen, and third with Mr Cutler—all fine-habited and striking kinds ; the first named with finely-formed orange-scarlet flowers. In the competition for the best Ivy-leaved Pelargoniums an altogether unique hybrid variety, shown by Mr J. W. Wimsett of the Ashburnham Park Nursery, Chelsea, received the first prize. It is a true hybrid, and was raised from a cross between the old Ivy-leaved Pelargonium and a Zonal variety, by Mr John Wills, late of Huntroyde Gardens, Burnley, and now manager to Mr Wimsett. It has the old Ivy-leaf type of foliage, except that it is shorter-pointed and more compact in habit, while the flowers, which are of a lively rose-colour, are as rounded and perfect in shape as one of the Zonal kinds. It is unquestionably one of the most remarkable hybrid Pelargoniums ever produced.

In Nosegays the first prize was taken by Mr Turner with Fire King, a very bright and large-trussed variety ; while in Zonals Messrs F. & A. Smith carried off the first with a fine new salmon-coloured flower of large size and good form, Acme, a most decided advance. Mr George Smith of Edmonton was second with Lord Stanley.

The competition in class 21 for six Golden Variegated Zonals was very close, and brought together a most beautiful lot of plants. The prize was taken by Messrs Carter & Co. for admirable plants of Mrs Dunnnett, a very smooth and bright-leaved variety ; Prince of Wales, already mentioned ; Sir Robert Napier, very dark, and distinct from all others ; and Edith Stuart. Mr Charles Turner was second with Lady Cullum, Mrs Headley, already referred to, Mrs Turner, Sophia Cusack, G. Moreton, and Lucy Grieve, very much out of colour. Mr Stevens of Ealing was third with capitally-grown plants, although, perhaps, not so bright in colour as the others, of Lucy Grieve, Sophia Dumaesque, Sophia Cusack, Lady Cullum, Mrs Turner, and Countess of Tyrconnell.

In class 22, for silver variegated Zonals, Mr C. Turner was first with Miss Stevens, Italia Unita, Excellent, Lucy, Mable Morris, and Hon. Mrs Falconer ; Messrs E. G. Henderson & Co., second with Silver Cloud, Charming Bride, Glen Eyre, Beauty, Italia Unita, Caroline Longfield, and Silver Star ; Messrs F. & A. Smith were third with Peri, Lady of the Lake, Caroline Longfield, &c.

The gold and bronze kind were very fine, Messrs Downie, Laird, & Laing taking first with Red Ring, Crown Prince, Prima Donna, Mrs Alan Lowndes, Stanstead Beauty, and Harrison Weir. These were all admirable plants, exhibiting both the dark and light forms of zone—the former most effective for the house, the latter for out-of-door work—and were all raised by the exhibitor, most of them being sent out this spring ; Messrs Carter & Co. were second with Southern Belle, Ada, Danae, Cleopatra, Black Prince, and Egyptian Queen ; Messrs F. & A. Smith third with Tom Brown, Arab, Sybil, Criterion, The Moore, and Hannibal. Both these collections were excellent, and indeed it is very difficult to say which are the best.

Messrs Downie, Laird, & Laing's Nosegays were very large and grand plants, comprising Emmeline, Duchess of Sutherland, Countess of Strathmore, Rose Stella, King of Nosegays, and Mrs Laing ; while Messrs Standish & Co. had enormous plants of Gloire de Nancy, Capitaine L'Hermite, and Madame Lemoine, double varieties.

BRAMCOTE TULIP EXHIBITION.

ON the 21st May the members of the above Society held their annual festival at the pretty rural village of Stapleford, a few miles from Nottingham. The members mustered in strong force, as usual, but the blooms were not in such full numbers as we have been accustomed to see them staged, and consequently the stands were not so closely contested as in previous years. This was owing entirely to the ungenial month of May, throughout the whole of which the plants and buds had to struggle on against cold north-east winds and rains, varied very frequently with violent and pelting storms of hail of no small dimensions, when woe to those devoted beds without protection! We heard of instances where plants, buds, and blooms in various stages were left a total wreck. And even with the tenderest care and most unremitting attention, the progress of the buds was so slow that numbers very promising in appearance, notwithstanding all that tenderness could devise, were not to be coaxed into fully-developed blooms for the day of trial, and had in consequence to be left at home, with the prospect and hope, weather permitting, of being in time for the "National," to be held a few days later in the month; others, mere buds, were cut from sheer necessity, the growers having nothing better to take their places.

On the whole, the show proved a good one, and very interesting; but the judges had no alternative but to place stands, not so correctly supplied with feathers and flames, in correct proportions, as the schedule set forth. However, the exhibitors did their best, but certainly feathered blooms were but few in number, and those not of first-class qualities; and *that* was a very favoured stand, indeed, that could boast the required number. On the contrary, flames abounded, and some remarkable specimens were to be seen in the stands, amongst which those chosen for premiers might receive honourable mention.

We found beds generally had lost this year their proportion of feathers, these having run into flames, and again flames into selfs in a number of instances. This, doubtless, was owing to the excessive wet winter we had passed through. Hogg in his Supplement, published about 1836, makes an observation that winters with heavy snowfalls were sure to bring a superabundance of colouring matter into the Tulip the following season. Now it is questionable whether a fine Tulip, after exhibiting so great a profusion of colour, can ever be brought again to its original fine qualities, so as to bear its exact proportions as in previous years, leaving growers at a loss for varieties for years to come to make up their stands with.

Mr Haynes of Derby undertook the duties of judge, assisted by three or four of the leading growers, and their decisions were received with satisfaction by the exhibitors generally. The seedlings of Mr Storer formed quite a feature of the exhibition. They are deservedly held on the highest esteem for exhibitional purposes, as well as for their attractions on the bed. Several were in the room, as will be seen by running the eye along the stands; the character of the markings being sharp and clear, and their general constancy, which prevails in the whole, will make them favourites for many years to come.

The following were the awards :—

STANDS OF TWELVE BLOOMS.

<p><i>First</i>—Mr Hextall, Ashby de la Zouch.—Headley's Adonis, fine; Walker's Duchess of Sutherland, fine flame; Headley's John Linton, a fine heavy flame, and rich in colours; Slater's Masterpiece and Charles X., two fair</p>	<p>feathers; Storer's J. D. Hextall, a richly-coloured flamed Bizarre, full too heavy as shown; Henry Groom, moderate, but of very dull colours; Lea's Industry and Heroine were fine feathers; Triomphe Royale and Headley's</p>
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Arethusa were flames, the last quite new in this locality, and likely to prove a favourite.

Second—Mr David Barber of Stanton-by-Dale.—Violet Amiable, a fair feather; Barber's Clara, a new variety, and good; an indifferent Lorenzo and a fine Duchess of Sutherland; Mrs Lomax, a good feathered Rose; Heroine, far better; Triomphe Royale, a superb flame; Mary Barber, a seedling, moderate; a very fine Storer's General Lee; a bad Dr Horner, placed as a feather; a very poor Perfection; and Storer's Mr Mills, flamed.

Third—Mr Storer of Derby.—A grandly-flamed Aglaia, and Triomphe Royale, even finer; Heroine, a mere bud; Lea's Industry, very light feather; Victoria Regina, moderate; Gibbons's Venus, a fine flame; Mrs Pickerill, good; Gibbons's Sarah Anne, a grand flame; Sphinx, only moderate; William Lea, fine flame; George Haywood, fine flame, and the same feathered.

Fourth—Mr John Atkins of Stapleford.—Violet Sovereign, a fine variety; Mrs Thackeray, feathered, and good; Nepaulese Prince, very fine; Headley's Adonis, fine feather; Heroine and Grace were fine feathers; Polyphemus, very fine flame; Paul Pry, a bad feather; Ira and Thomas Abbott, both very poor representatives of the red class.

Fifth—Mr Battersby of Mansfield.—Aglaia, a good flame; Beatrice, also

flamed; Martin's Jeanette, a very fine variety, and well marked, but too young; Heroine, a bud; Candidate, a fine flamed seedling Byblœmen; Chancellor, a superb flamed Byblœmen; Adonis, finely flamed, a seedling flamed Byblœmen; Royal Sovereign, good feather; Polyphemus; Pioneer, fine, a new flamed Bizarre; and Storer's General Lee, very good flame.

Sixth—Mr Gibbons of Bramcote.—Disley's Exile, fine; Abbott's Gem; Battersby's Chancellor, good; Violet Alexander, heavy flame; Miss Grace, a pretty feathered Rose; Napoleon, a pretty feathered Rose; Aglaia, flamed; Dixon's Bion, well marked; a fairly-marked Polyphemus; a good Royal Sovereign; but Sir Joseph Paxton and Paul Pry indifferent.

Seventh—Mr Thomas Greasley, Sandiacre.—Lord Denman; Queen of the North, flamed; Adonis, a good feather; Lorenzo, too young; Aglaia, flamed, fine; seedling flamed Rose and Heroine, good; Merit, fine; Admiral Dundas, a bud; Pilot and Delaforce's King.

Eighth—Mr John Clifford, Bramcote.—Lady Lilford, feathered Rose; Grande Rose Desire, a good flame; Lady Catherine Gordon, a fine flame; seedling feathered Rose; Lord Denman and Duc d'Orleans, flamed; Cabinet Minister, only moderate; Sir Charles Napier; Admiral Dundas, a good flamed Bizarre in the red class.

STANDS OF SIX BLOOMS.

First—Mr Shardlow of Derby.—Mrs Pickerill, a fair feather; Walker's Duchess of Sutherland, fine; Heroine, a mere bud; Rose Celestial, very fine flame; Lord Byron, a good feather; and a superb Sir Joseph Paxton.

Second—Mr Burdekin of Nottingham.—Fairy Queen, a good feathered Rose; Duchess of Sutherland, fine; Heroine, fine; Aglaia; Royal Sovereign and Garibaldi, fine.

Third—Mr James Plumbe of Risley.—Triomphe Royale and Heroine, both fine; Adonis, feather; a very grand

Lord Denman, an indifferent Royal Sovereign, and a very good Merit.

Fourth—Mr Henry Hurt of Stanton-by-Dale.—Aglaia, flamed, and the same feathered; Lord Denman and Duc d'Orleans; a very poor Royal Sovereign, and a fine flamed seedling of Storer's miscalled Captain White.

Fifth—Mr Wardle of Burton-on-Trent.—Lady Catherine Gordon, heavily flamed; Triomphe Royale, well marked; a large heavy Norwich Bagnet; a poor flamed Adonis; Lord Byron, only a bud; and a heavy Dr Horner.

Sixth—Mr John Spencer, Lenton, near Nottingham.—A seedling feathered Rose, and Nymph, a seedling flame, very nicely marked; Kossuth and Lorenzo; Turner's Premier and Sir Joseph Paxton.

Seventh—Mr Henry Waters, Stapleford.—Royal Sovereign, a good feather; Topsy, a bad flame; Victoria Regina, a very good feather; and a finely-marked Lord Denman; Rose Elizabeth and Aglaia.

Eighth—Mr William Oldham, Chilwell, near Nottingham.—Heroine; Aglaia; Abbott's Gem; Duchess of Sutherland; a bad Royal Sovereign, and a moderately-marked Polyphemus.

Ninth—Mr Thomas Smedley, Stapleford.—Aglaia and Heroine; Abbott's Gem, a very poor feather; and a finely-marked Lord Denman; Platoff, good; and Captain White, pure.

Tenth—Mr Coulby, Nottingham.—Heroine; Triomphe Royale; a fine Duchess of Sutherland; Mrs Pickerill; a bad Royal Sovereign; and Shakespeare, not equal to Polyphemus.

Eleventh—Mr Joseph Winfield, Stapleford.—Royal Sovereign, a fine feather; a fair Captain White; Lord Denman, good; and a flamed Byblœmen, unknown; Fairy Queen and Aglaia.

Twelfth—Mr Samuel Smedley, Stanton-by-Dale.—Queen Charlotte; Chancellor; Lady Lilford, heavy flame; Kate Atkins, a poor feathered Rose; a fine Sir Joseph Paxton, and a very poor Duke of Devonshire.

Thirteenth—Mr Lowe, Lenton.—Ne-paulese Prince, a good flower; Lorenzo, indifferent; Grande Rose Desire; and Aglaia; Paul Pry, a moderate flame; and a bad feathered Bizarre.

The premiers were chosen from the whole collection, Mr Barber's stand contributing no less than three of them—namely Heroine, feathered Rose; Walker's Duchess of Sutherland, flamed Byblœmen; and Storer's General Lee, a beautiful flamed Bizarre. Nymph, in Mr Atkin's stand, deservedly took the honour as flamed Rose. Lord Byron was the feathered Bizarre in Mr Shardlow's stand, and Victoria Regina the feathered Byblœmen, shown by Mr Waters.

Some very fine blooms were placed in the classes, but the feathered Roses fell very far short of the requisite number from lack of supply, nine being the full length.

Feathered Roses.—1. Heroine, Mr Storer; 2. Heroine, Mr Barber; 3. Heroine, William Coulby; 4. Sarah Headley, D. Barber.

Flamed Roses.—1. Aglaia, Mr Hextall; 2. Triomphe Royale, Mr Storer; 3. Rose Celestial, Mr Storer; 4. Rose Emily, Mr Barber; 5. Triomphe Royale, Mr Wardle; 6. Lady Wildair, S. Smedley; 7. Vicar of Radford, Mr Atkins; 8. Lady Catherine Gordon, Mr Storer; 9. Mrs Lomax, Mr Barber.

Feathered Byblœmens.—1. Mrs Pickerill, C. Shardlow; 2. Headley's Adonis, Mr Barber; 3. Maid of Orleans, Mr Barber; 4. Violet Amiable, Mr Hextall; 5. Queen of the North, Mr Barber; 6. Exile, Mr Barber; 7. Abbott's Gem, Mr Burdiekin; 8. Chancellor, Mr Plumbe; 9. Chancellor, Mr Spencer.

Flamed Byblœmens.—1. Duchess of Sutherland, Mr Storer; 2. Lord Denman, Mr Hurt; 3. Adonis, Mr Hextall; 4. Maid of Orleans, Mr Storer; 5. Queen Charlotte, Mr Barber; 6. Chancellor, Mr Gibbons; 7. Duc d'Orleans, Mr Spencer; 8. Verona, Mr Battersby; 9. General Barnaveldt, Mr Hurt.

Feathered Bizarres.—1. Royal Sovereign, T. Smedley; 2. Wilson's Unique, Mr Hextall; 3. Royal Sovereign, Mr Battersby; 4. Dormon's Prince Albert, Mr Battersby; 5. Royal Sovereign, James Plumbe; 6. Duke of Devonshire, Mr Barber; 7. John Brown, Mr Barber; 8. Polyphemus, Mr Gibbons; 9. Storer's Seedling, Mr Oldham.

Flamed Bizarres.—1. Sir Joseph Paxton, Mr Barber; 2. Storer's J. D. Hextall, Mr Hextall; 3. Sir Joseph

Paxton, Mr Storer ; 4. Joseph Godfrey, Polyphemus, Mr Atkins ; 8. J. D. Hex-
Mr Barber ; 5. Dr Hardy, Mr Barber ; tall, Mr Storer ; 9. Thomas Abbott,
6. Bertvistle's Sulphur, Mr Barber ; 7. Mr S. Smedly.

BREEDERS.

Roses. — 1. Juliet, Mr Shardlow ; 2. Mr Shardlow ; 5. Seedling, Mr Batters-
Industry, Mr Storer ; 3. Industry, Mr by ; 6. Seedling, W. Coulby.
Storer ; 4. Industry, C. Shardlow ;
Bizarres. — 1. Willison's King, Mr
5. Emily Birch, Mr Battersby ; 6. Hurt ; 2. Storer's Seedling, Mr Burdie-
Queen Mab, Mr Battersby. kin ; 3. Haynes's Lord Belper, Mr
Storer ; 4. Sir Joseph Paxton, Mr Shard-
Byblemens. — 1. Adonis, Mr Storer ; low ; 5. Seedling, Mr Storer ; 6. Un-
2. Excelsior, Mr C. Shardlow ; 3. known, Mr Winfield.



THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE summer exhibition of this Society took place in the Music Hall, George Street, Edinburgh, on the 9th of last month. As a display of plants, it was a fair average one as compared with other years. The same may be said of fruit, with the addition that we thought the Grapes finer than usual. Mr Temple, gardener, Balbirnie, had some very well finished Black Hamburgs which we thought should have been placed first in their class ; but we were told by one of the judges that they applied the very legitimate test of tasting them, and that decided the day in favour of Mr Laing, gardener, Pitcairlie, whose bunches were neither so compact nor well coloured, though larger. In the white class Mr Maconnochie, gardener, Cameron House, Dumbartonshire, showed splendid bunches of Buckland's Sweet-water, which were, however, placed second to Mr Thomson's Golden Champion. In the collection of six sorts of fruit Mr Thomson showed Pines, a Melon, Peaches, Nectarines, Black Hamburg and Golden Champion Grapes. Mr Anderson, gardener to James Lindsay, Esq., Dryden Bank, showed some very large and fine Peaches, which were placed second to others higher coloured but not quite so large. Mr M'Kay, gardener to Charles Tennant, Esq. of The Glen, showed a very handsome smooth Cayenne for so early a season of the year. Good Cherries came from Mr M'Millan, gardener to Lord Blantyre, Erskine House, near Glasgow ; some very fine Strawberries from Mr Gordon, gardener, Niddrie House ; Apples from Mr Lees, Tynningham ; and Lady Downes, of last year's growth, from Mr Temple.

Noticeable amongst plants were some very fine "foliated plants" from The Glen ; fine Heaths from the same place, and from Dalkeith Park ; Ferns from P. Neil Fraser, Esq., Canonmills Lodge, many of them being remarkably curious sports of *Scolopendrium vulgare* ; *Pelargoniums* from Mr Jones, gardener to Captain Bolton.

The Edinburgh nurserymen had all tables of neat well-grown saleable plants. P. Lawson & Son had a large and fine collection of cut *Rhododendron* blooms, besides other plants. Dickson & Co. a very tasteful stand of Bronze and Tricolor *Geraniums*, besides which they filled a long table with other showy plants. Mr Methven filled a large table with a very varied collection of fine plants, as did Mr Mitchell of Hanover Street, who also exhibited some very handsome specimens of the Tree Fern *Dicksonia Antarctica*. Downie, Laird, & Laing had a very choice

collection, including the remarkably fine new varieties of Coleus and Bronze Zonal Geraniums for which this firm has lately become famous. Drummond Brothers of George Street had also a neat collection of ornamental plants. Mr Campbell, gardener, Traprain, East Lothian, exhibited two of his purple and one of his white East Lothian Stocks. These plants had bloomed in the open border during last year, were taken up and potted in the autumn, and were, when exhibited, 1 yard across, and one dense mass of bloom, attracting the attention and admiration of all who saw them; for decorative purposes nothing at this season could surpass them. Mr Pirrie, gardener, Dysart, exhibited a good dark seedling Rhododendron, for which he got a certificate; Mr Gorrie of Trinity exhibited a new and rather pretty herbaceous plant from New Zealand called *Libertia grandiflora*, and cut specimens of *Clianthus puniceus*, var. *magnificus*, in full bloom, from a plant that had stood all winter unprotected in the open air.

The judges on the occasion were Messrs Pirrie, Dysart; Allan, Ratho; Niven, Hopetoun; Baxter, Riccarton; Lockhart, Leith Walk Nurseries; and M'Leod, Newbattle, who made the following awards:—

CLASS I.—NURSEYMEN.

Six Stove or Greenhouse Plants—1. Messrs Thomas Methven & Co., Leith Walk; 2. Messrs Dickson & Co., Waterloo Place.

Six *Calceolarias*, sorts—Messrs Downie, Laird, & Laing, Frederick Street.

Six Rhododendrons, sorts—Messrs Dickson & Co.

Two Stage and Two Fancy Pelargoniums—Messrs Downie, Laird, & Laing.

Twenty-four Roses, not less than 12 sorts—Messrs Downie, Laird, & Laing.

CLASS II.—GARDENERS AND AMATEURS.

Eight Stove and Greenhouse Plants in flower, not more than two of a variety—1. Wm. Thomson, Dalkeith Park; 2. John Currie, Salisbury Green.

Four Pelargoniums, sorts (either Stage or French varieties)—J. Currie, and John Jones, Bangholm Bower—equal.

Six Stove Plants in bloom, sorts—1. William Thomson; 2. John M'Kay, The Glen.

Three Rhododendrons, do. — John M'Kay.

Six Foliage Plants—1. John M'Kay; 2. William Thomson.

Four Cape Heaths—1. Wm. Thomson; 2. John M'Kay.

Four Ferns—1. William Thomson; 2. A. Gilmour.

Three Tricolor Geraniums — John Jones.

Three Bronze Geraniums—J. Jones.

Two Indian Azaleas—1. John M'Kay; 2. James Gordon, Niddrie.

Three Indian Azaleas—1. J. M'Kay; 2. James Gordon.

Two *Calceolarias*—John Jones.

Twelve Cut Roses—1. George Barrie, Corstorphine Hill; 2. John Fraser, Belmont.

Three Hand Bouquets—Robt. Robertson, Seacot House, Leith.

Two Herbaceous Plants—J. Gordon.

Six Alpine Plants—J. N. Fraser.

FRUIT.

Best Collections of Fruit (six sorts)—William Thomson.

Pine-Apple—1. John M'Kay; 2. Wm. Thomson.

Two Bunches Grapes, black—1. John Laing, Pitcairnie; 2. M. Temple, Balbirnie.

Two Bunches Grapes, white—1. Wm. Thomson; 2. J. Maconnochie, Cameron House.

Two Bunches Grapes (flavour), black

—1. James Gordon; 2. J. Maconnochie.

Six Peaches—1. William Thomson; 2. H. Anderson, Dryden Bank.

Six Nectarines—1. Wm. Thomson; 2. James Gordon.

Twenty-four Cherries—Jas. M'Millan, Erskine House.

One Basket Strawberries—1. James Gordon; 2. John M'Kay.

Dish of Figs (six)—John Laing.

VEGETABLES.

Two Cucumbers—1. John Laing; 2. M. Temple.

Pint Potatoes—1. James Gordon; 2. George Barrie.

Twenty-five Heads Asparagus—1. J. Maconnochie ; 2. John Masen.
Thirty Pods French Beans—M. Temple.

Collection of Vegetables—1. M. Temple ; 2. John Fraser.

The day was very fine, and the hall was crowded by visitors during the afternoon and evening. The band of the 42d Regiment (Black Watch) occupied the orchestra, and played selections of music at intervals in the course of the day.



SCOTTISH PANSY SOCIETY.

THE twenty-fifth annual competition of the Scottish Pansy Society was held, in connection with the Royal Caledonian Horticultural Society's Show, in Edinburgh on Wednesday the 9th June, and, judging from the crowds of visitors who congregated round the table, formed a very acceptable feature of the exhibition. The season has been peculiarly unfavourable for Pansy-growing, but, notwithstanding, there was a large amount of competition, and some of the specimens shown were very rich, and beautifully tinted. Seedlings were pretty numerous shown, and several selected received first-class awards, being great improvements on existing varieties in their respective classes. In Fancies especially the improvement was very decided both in form and marking, many of them approaching in smoothness to some of the fine old show varieties.

We may mention that this Society is in a very flourishing condition, numbering now above 130 members.

The following are the awards, with names of the flowers which gained the first prize in their respective classes :—

NURSERYMEN.

Twenty-four Blooms, dissimilar—1. Messrs Downie, Laird, & Laing, with J. L. Fleming, Adam Scott, Locomotive, Isa Clark, Yellow Queen, Roderick Nicholson, Lavinia, Prince of Prussia, Rev. H. Dombrain, De Foe, Village Maid, Miss Williamson, George Wilson, George Keith, John Currie, Princess of Wales, Joseph James, The Prince, Masterpiece, Rev. J. Smith, Miss Muir, Comus, Invincible, Robert Burns ; 2. Messrs Dickson & Co.

GARDENERS AND AMATEURS.

Eighteen Blooms, dissimilar—1. Mr John Beveridge, Bonnington, with Lavinia, Adam Scott, Miss Muir, Andrew Smith, Alice Downie, George Keith, Robert Burns, Princess of Wales, De Foe, Norma, Dux, George Wilson, Village Maid, Yellow Queen, J. B. Downie, J. Graham, General Lee, Perfection ; 2. Mr Duncan Kerr, Glencorse ; 3. Mr John Fraser, Belmont ; 4. Mr Lewis Sinclair, Inglis Green.

Twelve Blooms, dissimilar—1. Mr R.

Cuthbertson, Corstorphine, with Village Maid, J. B. Downie, Dux, Robert Burns, Princess of Wales, Prince of Prussia, Alexander M'Nab, Lavinia, Chancellor, George Keith, Mary Lamb, George Wilson ; 2. Mr Duncan Kerr ; 3. Mr William Old, Roslin ; 4. Mr James Fergie, Dunse.

Six Blooms—1. Mr J. Beveridge, with Comus, J. B. Downie, Princess of Wales, Robert Burns, George Keith, Lady L. Dundas ; 2. Mr Matthew Todd, Newmilns ; 3. Mr D. Kerr ; 4. Mr J. Fraser.

AMATEURS.

Twelve Blooms—1. Mr Robert Cuthbertson ; 2. Mr W. Old ; 3. P. W. Sime, Esq., Blacket Pl. ; 4. Mr Richard Ritchie, Penicuik.

Six Blooms—1. George Lorimer, Esq., 8 Mayfield Terrace ; 2. L. T. Fleming, Esq., Berwick ; 3. Mr Richard Ritchie ; 4. Mr James Fergie.

Four Blooms—1. H. W. Adair, Esq., 4 Hampton Terrace ; 2. Mr R. Ritchie ; 3. L. T. Fleming, Esq.

SPECIAL PRIZES.

GARDENERS AND AMATEURS.

Twenty-four Blooms—Mr M. Todd.
Eighteen Blooms—H. W. Adair, Esq.

Twelve Blooms—Francis Lightbody, Esq., 2 Hampton Terrace.

Six White Grounds—Mr William Old.

Six Dark Selfs—Mr Duncan Seaton, Blacket Place Lodge.

OPEN TO ALL.

Best Six Seedlings—Messrs Downie, Laird, & Laing.

FANCY PANSIES.

NURSERYMEN.

Twenty-four Blooms—1. Messrs Downie, Laird, & Laing, with Mrs Laird, Peter Campbell, Sunrise, Mrs Adair, Annie, William Hay, Daisy, Mrs Hammond, Mrs R. Dean, Minnie Laird, Miss Seaton, Olibo, Miss Jane Wilson, Curiosity, Keekum, Prince Leon, Miss J. Kay, Orange-boven, Mrs Lightbody, Mrs T. Scott, Alice Laird, Mrs Laing, Madeline

Tweedie, Tambourine; 2. Messrs Dickson & Co.

GARDENERS AND AMATEURS.

Twelve Blooms—1. Mr John Beveridge; 2. George Wilson, Esq., Dunse; 3. Mr William Laird, Kinellan.

AMATEURS.

Six Blooms—1. H. W. Adair, Esq.; 2. F. Lightbody, Esq.; 3. George Wilson, Esq.

SPECIAL PRIZES.

GARDENERS AND AMATEURS.

Twelve Blooms—H. W. Adair, Esq.

AMATEURS.

Six Blooms—F. Lightbody, Esq.

LADIES' PRIZE.

Most tastefully-arranged Bouquet of Pansies—Mrs Adair, 4 Hampton Terrace.

BEST SINGLE BLOOMS IN THE EXHIBITION.

Dark Self—Mr L. Sinclair, with Alexander M'Nab.

White Self—Geo. Wilson, Esq., with Miss Ramsay.

Yellow Self—Mr L. Sinclair, with Yellow Queen.

Primrose Self—Mr Duncan Kerr, with Emblem.

Light Ground—Mr John Fraser, with Cupid.

Yellow Ground—Messrs Downie, Laird, & Laing, with Robert Burns.

Best Pansy in Exhibition—Mr L. Sinclair, with Alexander M'Nab.

First-class certificates were awarded to Messrs Downie, Laird, & Laing for seedling Yellow Grounds John Currie and Roderick Nicholson.

First-class certificate to Dickson & Co. for Seedling Self Leith Walk Beauty.



GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.

THE summer floral *fête* of the Glasgow and West of Scotland Horticultural Society took place on Tuesday the 2d May, in the City Hall, Glasgow, and was an extremely successful exhibition.

The prizes offered were for house plants, cut flowers, bouquets, Grapes, and vegetables. The chief contributions to the show were the collections of plants from Mr Peter Denny of Helenslee, Dumbarton (Mr John Sutherland, gardener), and from Mr Thomas Coates of Ferguslie (Mr William Dickson, gardener). A fine specimen of the Fan Palm ornamented the centre of the Ferguslie collection, and at each end of the table was a specimen of the Thief Palm. The plants were all exceedingly well grown and beautifully arranged. The Helenslee collection included the finest foliage plant in the exhibition—a magnificent Croton; and another commanding object was a splendid specimen of the *Cyathea dealbata*, admired for the beautiful white shading of its foliage. Messrs J. & R. Thyne, Woodside Nurseries, contributed an elegant assortment of plants. Messrs Smith & Simons were also forward in excellent style; and on the platform a large and varied assortment of plants was exhibited from the Botanic Gardens. Among the general collections, foliage Geraniums were specially attractive, particularly the Castlemilk assortment, which again carried off the prize. The Ferns and Heaths were well grown, even the rarest varieties. Tulips were not very remarkable, the season having been much against them, but the first prize lot for twelve blooms, shown by Mr David Draper, Falkirk, were well deserving the honour awarded them. Mr Rennie's second and third lots were also meritorious. Cut Rhododendrons were a small show, and several of them were past the bloom.

Azaleas and Fuchsias were pretty well represented. Pansies, though they have not had a good season, were an excellent competition, and Mauchline and Newmilns again divided the chief honours. There was a large and attractive collection of both table and hand bouquets, and, as usual, a committee of ladies was appointed to judge the merits of these. In the small hall, Mr Methven, gardener to Colonel Campbell of Blythswood, contributed a richly assorted table of plants, crowned with a beautiful specimen of the *Cycas revoluta*. Mr Robertson of the Albert Gardens was also a large and meritorious contributor. The competition with four varieties of Orchids was gained by Mr Hogg with *Cattleya mossiæ*, *Vanda teres*, and other fine specimens. The vegetables, though not a large show, were good, there being some remarkably fine Rhubarb, and some well-grown Pease and new Potatoes.

[We were disappointed in procuring a list of the prizes awarded on the above occasion, and give the above notice from a contemporary.—ED.]



Notices to Correspondents.

[We have still to apologise to several of our correspondents for the inevitable postponement of articles which have been in type for months.]

W. N., Dis.—Thanks for your letter. What you say of the preparation is no doubt perfectly correct; but were we to insert it, it would be looked upon as an advertisement, and we cannot afford to advertise gratis. If the specific you write so highly of had been at any time advertised in our columns, we should have felt no difficulty in publishing your letter; but as the case stands, we should be doing those who advertise with us great injustice were we to insert such letters as yours, well meant as it no doubt is.

A. B., Oxon.—We received the morsel of the root of one of your Vines you sent us last month, but from it we cannot say what is the matter with your Vines—a patient might as well expect a physician to tell him what his disease was by sending him a hair out of his head. The bit of root seemed dead, but we could not detect fungi. We think it likely, seeing your borders are nearly all inside, that you allowed the roots to get too dry during the hot autumn of last year. You should take off as much of the surface-soil of the borders as possible, and add some fresh loam, dung, and bones; and keep the border well watered, seeing your drainage is so good. This, and attention to the foliage, may restore the Vines to their previous good health.

A CONSTANT SUBSCRIBER.—The insect No. 1 we frequently find on our Peach-trees, where it eats the leaves; No. 2 amongst our Vines, where it eats holes in the foliage. We call them both beetles, but cannot give you their scientific names; but, what is to you of more importance, we can tell you how to get rid of them. Place several saucers with treacle in them close to their haunts, and they will soon be found in dozens sticking in it.

We cannot say what is the matter with your Pear-trees.

J. W.—The house you describe will grow Pines well enough if you have the requisite skill. Any of our leading nurserymen will supply you with plants. The Queen Pine will suit you best. Buy plants now that are ready for a shift into their fruiting-pots; but unless you have a knowledge of Pine-culture do not expect much success for some years.

A SUBSCRIBER, Fife.—All we can say about your Fuchsias, judging from the points of the shoots you have sent us, is, that they are not healthy. This may proceed from their getting too much water or too little. The soil in the pots may be effete, or they may be standing too close together, or under the shade of Vines or other plants, and may in addition have too little ventilation. You can judge if they are subject to any of these unfavourable conditions.

H. B.—The plant you forward to us is the *Tragopogon porrifolius*.

THE GARDENER.

AUGUST 1869.



THE ROSE.

(Continued from page 298.)

CHAPTER XIII.—ROSES FOR EXHIBITION.



He who can ride exchanges his pony for a cob, and his cob for a hunter, and, having achieved pads and brushes, where hounds are slow, fences are easy, and rivals few, longs for a gallop at racing speed over the pastures and the “Oxers” of High Leicestershire, for a run with Tailby or the Quorn—as every man with a hobby (I never met *a man* without one) is desirous to ride abroad, and witch the world with noble horsemanship,—so the Rosarian, enlarging his possessions and improving his skill, has yearnings, which no mother, nor sisters, nor people coming to call, can satisfy, for sympathy, for knowledge, for renown. He is tired of charging at the quintain, which he never fails to hit, in the silent courtyard of his home: he will break a lance for his ladye in the crowded lists. And who loves maiden so fair as his? What mean these braggart knights, his neighbours, by praising their Rosas, so pale, so puny, in comparison? Their voices to his ear are harsh, irritating; they are as disagreeable as the crowings of contiguous cocks to the ears of the game bantam; and he feels it to be his solemn duty to roll those knights in the dust.

I offer my services as his esquire, and my advice as a veteran how to invert and pulverise his foes. By foes I mean those miserable knights who presume to grow and to show Roses without a careful study of these chapters. Not thinking exactly as we do, they are of course heretical and contumacious. They must be unhorsed. Then,

perhaps, lying peacefully on their backs in the sawdust, they may see the error of their ways, and come to a better mind. They may rise up, sorer and wiser men, and, meekly seeking the nearest reformatory, may gradually amend and improve, until at last they become regular subscribers to the 'Gardener,' and respectable subjects of the Queen of Flowers. Be it mine, meanwhile, to teach the virtuous amateur how to buy a charger, and how to ride him, what Roses to show, and how to show them, first reminding him that he must have a good stable, good corn, and good equipments in readiness for his steed—must be armed before he competes with those weapons which I have named before as essential to success, and which I must once more ask leave to commend. He must have an enthusiastic love of the Rose, not the tepid attachment which drawls its faint encomium, "She's a nicish girl, and a fellow might do worse," but the true devotion, which sighs from its very soul, "I must, I will win thee, my queen, my queen!" He must have a good position, a home meet for his bride. He must have for his Roses a free circulation of air, a healthful, breezy situation, with a surrounding fence, not too high, not too near, which shall break the force of boisterous winds, temper their bitterness ere they enter the fold, and give *shelter* but *not shade* to his Roses. He must have a good garden-soil, well drained, well dug, well dunged. And having these indispensable adjuncts, he may order his Show-Roses.

"Thanks, dear professor," here exclaims the enraptured pupil (I am mocking now with a savage satisfaction those dreadful *scientific dialogues* which vexed our little hearts in childhood); "your instructions are indeed precious—far more so than the richest jam, than ponies, than cricket, or than hide-and-seek; but may we interrupt you for a moment to ask, What is your definition of a Show-Rose?"

"Most gladly, my dear young friends," replies the kind professor (anxiously wishing his dear young friends in bed, that he might work at his new book on beetles), "will I inform a curiosity so honourable, so rare in youth. I propose, therefore—avoiding all prolixity, repetition, tautology, periphrasis, circumlocution, and superfluous verbosity—to divide the subject into forty-seven sections," &c. &c. &c.

Leaving him at it, let us be content to know that a Show-Rose should possess—

1. Beauty of form—petals, abundant and of good substance, regularly and gracefully disposed within a circular symmetrical outline.
2. Beauty of colour—brilliancy, purity, harmony, endurance. And,
3. That the Rose, having both these qualities, must be exhibited in the most perfect phase of its beauty, and in the fullest development to which skill and care can bring it.

The names of the Roses which are more specially adapted for exhi-

bition, from their exquisite proportions and lovely tints, from contour and complexion too, are given in the following list. It has been compiled with much observant care, and it is no exaggeration to say that the compiler has recently travelled more than 1000 miles to make his catalogue complete. With this as my primary object, I have attended the four great Rose-shows of the season—the National, the Crystal Palace, the Hereford, the Birmingham—and, acting as a judge at these exhibitions, I have had the best opportunities of examining, comparing, and discussing the merits of the flowers exhibited, and of selecting the most perfect. Every Rose on the list, if grown and shown in its integrity, has symmetry, colour, and size. Finally, I have submitted my selection to the champion exhibitor* of the year, and having his suggestions and additions, I present it to the amateur as a sure guide. He *ought* to have every Rose enumerated; he *must* have those printed in italics. The names with no letter attached are of the Hybrid Perpetual class. B signifies Bourbon, N Noisette, and T Tea-scented China.

ROSES FOR EXHIBITION.

Abel Gand.
 Achille Gonod.
 Adam, T.
Adolphe Brongniart.
Alfred Colomb.
 Alice Dureau.
 Alpaide de Rotalier.
 Antoine Ducher.
 Archimede, T.
 Baronne Adolphe de Rothschild.
 Baron Gonella, B.
 Beauty of Waltham.
 Black Prince.
Camille Bernardin.
 Caroline de Sansales.
 Celine Forestier, N.
 Centifolia Rosea.
Charles Lefebvre.
Charles Rouillard.
 Christina Nielson.
Climbing Devoniensis, T.
Cloth-of-Gold, N.

Comte de Nanteuil.
Comtesse C. de Chabrillant.
 Comtesse Jaucourt.
Devoniensis, T.
Dr Andry.
 Duc de Magenta, T.
Duc de Rohan.
 Duke of Edinburgh.
 Duke of Wellington.
 Duchesse d'Aoste.
Duchesse de Caylus.
Duchesse d'Orléans.
Elie Morel.
Exposition de Brie.
 Fisher Holmes.
François Lacharme.
 François Louvat.
 François Trevye.
 Général Jacqueminot.
 Gloire de Dijon, T.
Gloire de Santenay.
Gloire de Vitry.
 Horace Vernet.

* My friend Mr George Paul of Cheshunt, to whom I owe and offer my thanks.

Jean Cherpin.
 Jean Goujon.
 Jean Lambert.
John Hopper.
 Julie Touvais.
 Lafontaine.
La France.
 La Reine.
 Laurent Descourt.
La Ville de St Denis.
Leopold I.
 Leopold II.
Leopold Hausburg.
 Lord Herbert.
 Lord Macaulay.
 Lord Raglan.
Louise Magnan.
Louise Peyronney.
 Madame Barriott.
 Madame Boll.
Madame Boutin.
Madame Bravy, T.
Madame Caillat.
 Madame Canrobert.
 Madame C. Crapelet.
Madame C. Wood.
Madame Clemence Joigneaux.
 Madame Fillion.
Madame Furtado.
 Madame Julie Daran.
Madame la Baronne de Roths-
child.
 Madame Marie Cirodde.
Madame Noman.
Madame Rivers.
Madame Thérèse Levet.
Madame Victor Verdier.
Madame Vidot.
 Madame Willermorz, T.
 Mademoiselle Bonnaire.
Mademoiselle Marguerite Dom-
brain.
Mademoiselle Marie Rady.

Maréchal Niel, T.
Maréchal Vaillant.
Marguerite de St Armand.
Marie Beauman.
Marquise de Montemart.
Maurice Bernardin.
 Michel Bonnet.
Miss Ingram.
 Modèle de Perfection, B.
 Monsieur Boncenne.
Monsieur Noman.
 Narcisse, N.
 Nardy Frères.
 Niphetos, T.
Olivier Delhomme.
Pierre Notting.
 Pitord.
 President Willermorz.
 Prince Camille de Rohan.
 Prince Henri de Pays Bas.
 Princess Mary of Cambridge.
 Reine Blanche.
 Reine du Midi.
Rubens, T.
Sénateur Vaisse.
 Sophie Coquerel.
 Souvenir d'Elise, T.
 Souvenir de Poiteau.
 Souvenir de la Malmaison, B.
 Souvenir de Mademoiselle Jenny
 Pernet, T.
Souvenir d'un Ami, T.
 Thorin.
Thyra Hammerich.
 Triomphe de Rennes, N.
 Vainqueur de Goliath.
 Vicomte Vigier.
Vicomtesse de Vesin.
 Victor le Bihan.
Victor Verdier.
 Ville de Lyons.
 Virginale.
Xavier Olibo.

In ordering these Rose-trees, which will cost, many of them being new, about £7, 10s.,* I advise the amateur to ask for low Standards. The height which I prefer is about 2 feet from the ground to the budded Rose, because these lesser trees escape the fury of the wind, requiring no stakes to support them after their first year; because they are more conveniently manipulated than either dwarfs or giants; and because their complete beauty presents itself pleasantly to our eyes, without bringing us down on our knees, or requiring us to stand a-tiptoe. They should be planted in November, just deep enough to have a firm hold upon the soil; and the surface round them should be covered with a stratum of manure, both to protect and enrich the roots. Should they be sent from the nurseries with any shoots of great length, or with taproots, shorten the former, or secure them to a stake, and remove the latter altogether. Affix your permanent tallies (I use smooth slips of deal, smeared with white paint, written upon with a black-lead pencil, and secured with thin wire to the trees), because the labels of the nurseryman, even when on parchment, become illegible from rain and snow.

“And next summer,” exclaims the ardent disciple, “we shall have Roses as large as finger-glasses; we shall win the Cup; we shall make the Marquess’s gardener, that bumptious Mr Peacock at the Castle, for ever to fold his tail.” It troubles me to repress this charming enthusiasm, to demolish a superstructure as gay, but, alas! as baseless, as those card-houses which the child builds, with the kings, queens, and knaves of the pack, upon the polished mahogany of his sire. No, my dear amateur, not next summer, nor in any summer, with those Roses only which will grow upon the trees just commended to you, are you to whip creation, and make the family plate-chest groan. *If you propose to grow Roses for exhibition—that is, to grow them to their full perfection—you must grow them on your own stocks from buds.* The Rose-trees, which we will suppose you have just planted, are to supply these buds, and you have still to provide, if you will follow my directions, some 500 stocks, to receive those buds in July. These stocks, like the Rose-trees, should be planted in November; but what are these stocks to be?

Æsop told the gardener of his master, Xanthus, that “the earth was a stepmother to those plants which were incorporated into her soil, but a mother to those which are her own free production;” and wherever the Dog-Rose flourishes in our hedgerows—now delighting our eyes with its flowers, and now scratching them out with its thorns,

* I allow £5 for 100 older varieties; the price usually charged by nurserymen being, for dwarf Standards, 1s. each, and £2, 10s. for 25 newer varieties, at 2s. each.

should we follow the partridge or the fox too wildly—*there the Brier is the stock for the Rose*. I know that, despite the dictum of Æsop, our soil has been no *injusta noverca* to that foreign Rose, which took the name of Manetti from him who raised it from seed, and which was sent to Mr Rivers, more than thirty years since, by Signor Crivelli, from Como. I know that the Italian refugee is acclimatised, and that in hundreds of our gardens he is a welcome and honoured guest. I know that the Manetti will grow luxuriantly where the Brier will not grow at all; that in a toward season it will produce *some* varieties of the Rose in perfection; that in many cases it causes a larger *quantity* of wood and bloom; and that it seems to be more enduring than the Brier, because the Brier being used as a standard, is more exposed to hardships, and because the Rose being budded beneath the soil on the Manetti, establishes itself in most cases upon roots of its own. I know, in fine, that the importation of this stock has been a very gracious boon to those who love the Rose; but I am equally sure that *nine-tenths of the most perfect Roses which have been grown and shown have been cut from the British Brier*. I have proved this not only from my own experience, having grown the two stocks side by side, in a variety of seasons and soils, but also from inspection and inquiry. Latterly I have made a point of asking at our exhibitions the parentage of Roses which have been admired the most, and the answers have been, ninety per cent of them, as I foreknew they would be, “The Brier.” In Dorsetshire, last summer, two of our best Rosarians (if they read these lines, a brother’s love to them) “discoursed as they sat on the green,” and when they had discoursed, it was written by one of them (see the ‘Journal of Horticulture’ for August 13, 1868), “For general use *the Brier is doomed*; . . . it is time to think seriously of discarding it.” But then he adds, and I pray you to mark the reservation, “Exhibitors will not do so, I believe, for *the maiden blooms from a Brier are superior to those from the Manetti*.” But no earnest lover of the Rose will be satisfied with inferior blooms, having the hope of better; and it should have been stated, accordingly, not that the Brier is doomed for general use, but only with regard to those unhappy localities where it cannot be grown.

If your lot is cast therein, my amateur (but do not think so without a trial), you may grow Roses for your own delectation in pots on their own roots, and on the Manetti, but I do not urge you to compete. If the Brier flourishes in your district, order 500.

Here, I know, the young aspirant will protest, because I have often heard him, “Does this fellow desire to ruin me, or has he got an idea that I am Lord Overstone?” And I reply with dignity, “No, my friend; I invite you, on the contrary, to buy a glorious garden of Roses

for the sum which you would pay for five new Tricolor Pelargoniums nearly as good as Mrs Pollock, for one specimen stove-plant, and for half a specimen Orchid. Allow £7, 10s. for your Roses, and £2 for your Briers, and ye shall 'siller ha'e to spare' from your £10 note." When Briers are abundant, 6s. per 100 for dwarfs and 7s. 6d. for tall standards is a usual tariff; but you should remember that it is rough work, and that if you cull the best you should be liberal.

Give your order—and any labourer will soon learn to bring you what you want—towards the end of October. I have myself a peculiar but unfailing intimation when it is time to get in my Briers—*my Brier-man comes to church*. He comes to morning service on the Sunday. If I make no sign during the week, he appears next Sunday at the evening also. If I remain mute, he comes on week-days. I know then that the case is urgent, and that we must come to terms. Were I to fancy the Manetti instead of the Brier, my impression is that he would go over to Rome.

Having made timely arrangements to secure your supply of stocks before the severities of winter are likely to prevent you from planting (should sharp frost surprise you during the process of removal, you must "lay in" your Briers securely, digging a hole for them, placing them in a bundle therein, covering the roots well with earth, and throwing an old mat over all), you must be most vigilant in your selection of the stocks themselves. Some gardeners display in this matter a lamentable indifference. Their motto seems to be *Stemmata quid faciunt?*—why should not one Brier be as good as another? Their budding-ground might be an asylum for the deformed, the weak, the aged, instead of the school for healthful youth and the training-ground for heroes. Let the amateur, avoiding this fatal error, and remembering as his rule, *Ex quovis ligno non fit Mercurius*, select young, straight, sapful, well-rooted stocks, that the scion may be vigorous as the sire. Let these be planted as soon as he receives them—his collector bringing them in daily, and not keeping them at home, as the manner of some is, until he gets a quantity—in rows, the Briers 1 foot, the rows 3 feet apart.

The situation and the soil for your Briers must be just as carefully studied as though the Roses were already upon them. These stocks are not to be set in bare and barren places, exposed to ridicule and to contempt, as though they were the stocks of the parish; nor are they to be thrust into corners, as I have seen them many a time. They should occupy such a position as one sees in the snug "quarters" of a nursery—spaces enclosed by evergreen fences, which, somewhat higher than the trees within, protect them from stormy winds.

Watching their growth in spring, the amateur should remove the

more feeble lateral shoots, leaving two or three of the upper and stronger. Suckers from below must also be removed. The latter operation is most easily and effectually performed when rain has just softened the soil around ; and weeds, which evince in times of drought such a rooted antipathy to eviction, may then be readily extracted without leaving fibre or fang.

The stocks may be budded in July, and I advise the amateur who wishes to bud them, to learn the art, by no means difficult, not from books, but from some neighbour Budhist, who will quickly teach him as much of transmigration as he desires to know. If he learns to make one slit only, so much the better, the transverse cut being quite unnecessary, and liable to cause breakage if too deeply made.

Select strong buds from your Rose-trees. It requires some little resolution to cut away the cleanest, most healthful wood, but the recompense is sure and ample. Do not expose your cuttings to the sun—a watering-can, with a little damp moss in it, is a good conveyance—and get them comfortably settled in their new homes as soon as it can be done. In three weeks or a month you may remove the cotton ; in November you may shorten the budded shoot to 5 or 6 inches from the bud ; and in May you may cut it close to the bud itself. You must now keep a constant supervision over your budded stock, removing all superfluous growth, and having your stakes in position, so that you may secure the growing bud against those sudden gusts which will force it, if not safely fastened, “clean out” of the stock. These stakes must be firmly fixed close by the Briers, and should rise some 2 feet above them. To this upper portion the young shoot of the Rose, which grows in genial seasons with marvellous rapidity, must be secured with bast. Look out now for the Rose-caterpillar, that murderous “worm i’ the bud.” I generally employ a little maid from my village school, whose fingers are more nimble and whose eyes are nearer to their work than mine, who prefers entomology in the fresh air to all other ologies in a hot school, and who takes home to mother her diurnal ninepence with a supreme and righteous pride.

Towards the end of May apply the surface-dressing which is recommended in Chapter VI.—I presuppose a liberal supply of farmyard manure in autumn, as advised in the same chapter—and at the same time take off freely the lesser and numerous Rosebuds which surround the central calyx. A painful process this slaughter of the innocents, this drowning of the puppies of the poor Dog-Rose, but justified in their eyes who desire to see the Rose in its brightest glory, and who prefer one magnificent Ribston Pippin to a waggon-load of Crabs.

We must revert here briefly to the parental trees, from which the buds were taken in July. Although they cannot, speaking generally,

reproduce the beauty of their first-born, they will give you, in return for attentive culture, very valuable help. They will be in bloom at the time of the earlier shows, when the Roses in your budding-ground may not be fully out; and in some cases they will supply you with better flowers than can be gathered from a "maiden plant." It is so with regard to Teas and Noisettes, and with several other Roses—such as François Lacharme, Gloire de Santenay, Louise Magnan, Madame Boutin, Madame C. Joigneaux, Maréchal Vaillant, Miss Ingram, Monsieur Noman, Olivier Delhomme, &c. Moreover, you should have in your Rose-garden the advantage of a wall on which to grow the more tender Roses, those grand Maréchal Niels, Devonienses, and Souvenirs d'un Ami, so distinct from the Hybrid Perpetual varieties, and such exquisite contrasts among them.

Let us now suppose that in both these departments your loving and patient care has brought you the prospect and proximity of such a splendid harvest that you have entered your name as an exhibitor at one of our great Rose-shows. Ah, what a crisis of excitement, to be remembered always, in the glad Rosarian's life! It is as when the boy, who has distinguished himself in the playing-fields, goes forth from the pavilion at Lord's in the Eton and Harrow match. It is as when the undergraduate, who has been working manfully, enters his name on the list of candidates for honours. What sweet solitudes! What hopeful fears! Look—Mr Grimston is whispering to that Harrow boy, just going to the wicket with his bat, wise words anent the Eton bowling. Listen; that tutor, with the clever kindly countenance, is speaking cheerfully to his pupil, white as the kerchief round his throat, as he enters those ancient awful schools. So would I aid and abet my amateur—so would I bring a stirrup-cup to my young brave Dunois. *Partant pour la Syrie*—that is, for the National Rose-show—he wants information as to boxes and tubes and moss, as to the time of cutting, the method of arrangement; and he shall receive, in the succeeding chapter, the best which I have to give.

S. REYNOLDS HOLE.



TRAVELLING NOTES ON GARDENS IN THE MIDLAND COUNTIES.

(Continued from page 142.)

At the conclusion of my last communication I had reached St John's Nursery, Worcester, which ranks among the largest provincial establishments in the kingdom, extending to rather more than a hundred acres. But what of size? that is nothing—it is the variety and quality

of the stock that engage the attention of the visitor. Reaching the entrance gate, situated on the Bransford road, I was brought for a few minutes to a dead standstill, admiring a broad carriage-drive or avenue a mile and three quarters long. This noble approach is planted on either side several rows deep with a choice and varied collection of Coniferæ. This, I understand, is not intended to be a permanent arrangement. All are saleable, and as vacancies occur the empty spaces are filled, so as to produce a continuous feature. The nursery is again divided into sections by walks of a less pretentious character, and it may surprise a stranger when told that in the aggregate the entire length amounts to 26 miles. Fifty acres are specially set apart for the growth of fruit-trees, and 52,000 are annually trained for walls and espaliers; so great is the demand in this department, that 150,000 to 200,000 stocks are yearly required to meet the consumption. Where the outlet is for so large a quantity of trees is a mystery to me, and I dare say to others as well. We might reasonably suppose that enough is propagated to supply the wants of Great Britain and Ireland. A specimen of each kind is grown in the nursery, and even this caution does not satisfy Mr Smith's particularity; he appoints a person on whom he can depend to collect the seeds and grafts, so it is hardly possible, unless by carelessness, that they can get confused.

Coniferous plants are grown extensively, whether as to species or varieties, including recent introductions. For instance, it is not common to see at one place *Abies nobilis* grown by thousands, not a stunted little struggling object among them, no side shoots being compelled to accept the office of a leader. The secret why all are so vigorous is this, that Mr Smith has cone-bearing trees, so that his entire stock consists of seedling plants. There is a *Picea*, called *magnifica*, and by some persons *robusta*, but it does not appear to me to differ from *nobilis*; certainly a little more glaucous in colour, but that may arise from some peculiarity of soil; independent of any such concurrence, I feel satisfied that there are several varieties. During my hasty visit—something between a walk and a run—the following plants appeared to me to deserve special attention; not that they are new, but because of their individual merits and their applicability for villa decoration, as well as for other places of greater extent. We have first *Juniperus drupacea*, possessing a graceful outline and a somewhat drooping habit. *Juniperus nana* is an admirable plant for the rockwork, as it scarcely or ever exceeds 12 inches in height. *Juniperus Chinensis variegata* is very distinct from the common Chinese Juniper, and as the variegation is constant, and the habit ornamental, its value is much increased.

Here for the first time I met with *Pinus Cembra variegata*, a sport,

I presume, still scarce and rather high priced. There does not appear to be any difference in habit between it and Cembra: the straw-coloured foliage is the only marked distinction. From present appearance I have no doubt that, when it reaches to a large size, it will distinguish itself either as a park or pleasure-ground tree. The fact may not now be admitted, but the time will come, and is near, when a harmonising of colour among trees and shrubs will be as much in demand as it is now in our flower-gardens. I do not say that we are yet in possession of the requisite material, but fresh introductions are yearly coming in to enable us to carry out such an arrangement.

Evergreens are also extensively grown. In no nursery have I seen them treated with more care. They seem to be a subject of special regard. There is an immense number of Portugal Laurels, of almost every size, being trained as pyramids and dwarf standards for the purpose of decorating terraces and large geometric designs, or, wherever admissible, as a substitute for Orange-trees. Nowhere have I seen this feature produced with so much effect as at Trentham. The roots as well as the branches undergo a careful supervision. They are yearly, or bi-yearly, pruned so as to secure a large mass of fibre, that removal to any part of the kingdom may be carried out with perfect security. Without any preparation the soil is well adapted for the Rhododendron, as it grows with the greatest freedom. The stock is large, and comprises all the newest and best varieties. A plant of *Taxus fastigiata* was pointed out to me, and I was much pleased to have so valuable a thing brought under my notice. The habit is exactly the same as the common Irish Yew. The distinction in colour consists in the leaves having a green centre margined on the outside with yellow.

The Ivy holds a conspicuous place. I had no suspicion that the variegated kinds were so numerous; but it is so, and they comprise a great variety of colour. In a general way, Ivy is somewhat neglected, but it possesses properties which only require to be utilised. For instance, they would greatly assist in enabling us to introduce to our pleasure-ground no inconsiderable amount of colour, which would lighten up many shady corners, by having the plants trained to stumps of trees, old roots, or in any form agreeable to the taste of the proprietor. Again, as a screen to shut out disagreeable sights, they have been adopted at Drayton Manor with good effect.

Roses are an important feature in Mr Smith's nursery. The collection occupies 8 acres, containing all the newest and best kinds to be met with elsewhere.

I now reached what may be called the preparation department, the place where the majority of the hardy stock is propagated, containing

numerous ranges of brick pits, glazed and unglazed. There are thousands upon thousands of young plants in all stages of growth, an *omnium gatherum* representing every temperate region, but yet undetermined whether all will withstand the rigours of our British winters. Orchard-house trees appear to be a leading feature in Mr Smith's nursery, and are thoroughly cared for, too. They consist principally of Nectarines, Peaches, Pears, Apricots, Plums, and Cherries. The amount of training, pinching, and *et ceteras* must consume a great deal of labour. Including the pits to which I have just referred, the extent of glass erections comprises 72,600 feet. There is one house devoted exclusively to the culture of Grapes in pots, 117 feet long by 17½ feet wide. A second for the same purpose is 115 feet long by 25 feet wide. There are two orchard-houses, one 200 feet long by 27 feet wide, the other 45 feet long by 25 feet wide—these are employed for the production of fruit; and for the preparation of the trees, a house 196 feet long by 27½ feet wide,—so it will be seen that this department of horticulture is carried on rather extensively, and I believe successfully. To these Mr Smith is making extensions: there was a house nearly finished, 360 feet long by 19 feet wide, divided into two divisions, the largest to be employed for the growth of Roses in pots, and the smaller for propagating hard-wooded plants.

In addition there are Fig-houses, Orange-houses, Stove-houses, Greenhouses, and others for the growth of ornamental plants. All have fixed roofs, and are ventilated by small movable sashes at the top and sides; the whole design is simple, yet substantial. The cost of such erections, compared with what is usually seen, must be a mere fraction, and answer every purpose as effectually. One of Jones's terminal boilers heats 2000 feet of 4-inch pipe,—indeed, it is the only one in use. In closing this notice I cannot help mentioning the order that prevails in every department; and to conduct operations as they are done here, requires the exercise of a master mind. When I say that one hundred and thirty men are usually employed, the number may appear excessive, but when the quality of the stock is considered, and the great care it involves, so large a force of physical power cannot be more than a match for the demand.

The day was now far spent, so I hurried back to Worcester, and took the train to Malvern Link, and thence to Madersfield Court, the residence of Earl Beauchamp. I had frequently heard that Mr Cox had been engaged making a new garden for some years past, and was anxious to see what had been done. The space enclosed for the culture of Vegetables is about 4 acres, independent of outside slips, which are useful auxiliaries, inasmuch as many odds and ends can be

placed there that would otherwise interfere with a regular routine of vegetable cropping. By the walk-sides Mr Cox has entirely dispensed with Box edging, in lieu of which bluish-coloured tiles have been substituted, and have a neat appearance. In the first place, they save a great amount of labour; and in the second, give no shelter to weeds or vermin of any kind. These tiles have been so constructed as not to yield to ordinary pressure; the uprights fit into a grooved socket, and hold together by Roman cement. Pyramidal Apple, Pear, and Plum trees are planted by the side of the walks, the very picture of health, and, no doubt, will crop well in the course of a few years. But without the least desire to criticise, this system of training will certainly not give so large a return as when grown in the form of dwarf standards; there may, however, be cogent reasons for the adoption that I do not quite comprehend.

The wall-trees have been started well, and are growing vigorously, not so strong as to raise any suspicion that at the end of the season the wood will be left immatured. The Peach-wall is 360 feet long, and rather more than 11 feet high, planted with all the newest and best kinds. An extensive range of houses has been put up for fruit and plant culture. I can say, without the slightest scruple, that the arrangement could not have been better, in whatever way the design may be viewed. The Peach-houses are a half-span, 90 feet long by 14 feet wide, planted with the following varieties of the Nectarine: Pitmaston Orange, Violette Hative, and Victoria (one which Mr Cox considers the best, whether for forcing or planting in the open air). The Peaches are Violette Hative, Grosse Mignonne, and others of equal merit. Independent of these, a considerable number are grown in pots, and so managed as to ripen fruit so late as the middle of November. None for such a purpose does Mr Cox consider so valuable as the Salucy Peach, and no doubt, where fruit is considered a desideratum at so late a period, this is just the sort to step in and supply the demand. But what then? the quality is worthless at any season.

The fruiting Pine-stoves are 90 feet long, and in all the bottom-heat is produced by hot water. The plants were of a moderate size, stocky, the leaves of a deep green, broad and firm. The practice is adopted of confining the roots to small pots, now customary among cultivators. The collection consists of the following sorts, which Mr Cox considers sufficient to satisfy every reasonable demand: Charlotte Rothschild, Smooth and Prickly Cayenne, Black Jamaica, several varieties of the Queen and Black Prince. The latter grows to a large size. I measured a fruit nearly ripe, 1 foot high and 19 inches in circumference at the base. Opinion differs widely as to the merits it may possess; some affirm that the quality is so low as only to take

a second or third position, while with others it ranks high. It is not my intention to enter a protest in either direction. All will, I think, willingly admit that as an exhibition fruit it has few equals.

The Fig-house is 30 feet long by 14 feet wide. The trees are planted in prepared borders, and trained to the roof. By this plan we may produce larger fruit, but I have never found it so numerous nor so highly flavoured as under pot-culture, unless the roots are closely confined. As yet there are only two plant-houses, a stove and green house, each 32 feet long by 20 feet wide. Both are filled with a miscellaneous collection.

During the existence of the old garden Mr Cox displayed no inconsiderable ability as a cultivator, and no doubt, with his increased and superior accommodation, he will exceed his former reputation. The vineries are built in a continuous range, 150 feet long by 18 feet wide, partitioned off into five divisions, the varieties of Grapes so arranged as to carry on the supply to a late period. Two ranges of pits were being built, each 50 feet long by 9 and 6 feet wide, subservient to different purposes. The offices are numerous and convenient, the young men's apartments are excellent—the time has expired when this class of men was housed in mere hovels, as if an inferior part of creation. Nor must I omit to notice the elegant and substantial dwelling-house that has been built for Mr Cox, replete with all that can possibly be desired. But persons may say, What of Mr Cox's new Grape—a cross between the Alicante and White Muscat? Quite true, the inquiry is just, and must not be passed over. I have examined it minutely, I have tasted it more than once, and can assure my readers that it possesses first-class properties, whatever has been or may be said to the contrary. It possesses even a stronger Muscat flavour than the Muscat itself, and I am informed by a good judge, who has lately visited Madersfield, that this property increases with age. Large both in the bunch and berry, a free setter, and, like its parents, it keeps well till late in the season. A plate of it was lately published in the 'Florist and Pomologist'—an excellent representation, but the size of the bunch was slightly overdone.

ALEXANDER CRAMB.

TORTWORTH COURT.

(*To be continued.*)



THE KITCHEN-GARDEN.

No. V.

(Continued from page 268.)

LETTUCE.

To be able to supply well-blanché and crisp sweet Lettuce nearly every week in the year, requires a considerable amount of forethought and attention, and is a result very much valued and relished by those who are lovers of salads. To have them in good condition early in May in the open air, make a sowing of the Hardy Brown or Brown Bath Cos on a bed of light rich soil from the 8th to the 20th of August, according to soil and locality. On light early soil the latter date is sufficiently early. It is of importance to get fine Lettuce, the least likely to run to seed, at any season, that good cultivation should be adopted at the beginning, and attended to throughout their whole growth. The seedling-bed should therefore be well manured with rotten dung, deeply dug, and well pulverised, and have an open sunny exposure, so that the plants may be stocky and strong. The seed should not be sown thick, as it is of importance that a crop which has to stand outdoors unprotected should not be drawn and blanché from being thick in the seed-bed. To get the sowing fit for use as early as possible in the open air, the bottom of a south wall is the best place to plant them. A border from 2 to 2½ feet wide, measuring from the wall, well manured and worked, is the position generally chosen for this crop. When the plants are about 2 inches high, which is generally the first week of December, they are ready for transplanting from the seed-bed into the wall-border. Put two rows in the width named, and the plants 6 inches apart in the row; and in performing this operation avoid the too common mode of drawing the plants from the bed with the hand, instead of using a fork to raise them, in order to preserve the tap and other roots as entire as possible. Planting should not be performed when the soil is wet; indeed, the best time to plant is immediately the border is dug. The surface should be first raked rather finely, because the great enemy of Lettuce in autumn and winter is the slug, and a rough lumpy surface affords them the best hiding-place, and renders measures for their destruction—such as dusting with hot lime and soot—less efficacious. As soon as planted they are watered, and kept regularly moist, should the weather be dry, till they take hold of the ground and begin to grow. Beyond keeping them free from falling leaves, and occasionally stirring the surface of the soil, they require no further attention till March. In case of very severe frosts, a few Evergreen boughs, or some straw strewn amongst

and over them, prevents them being severely crippled, and so kept later in being fit for use.

In March, a rich piece of ground on an east or west border, well enriched and deeply dug, is prepared whereon to plant every other plant from the wall-border. Those transplanted plants are lifted with a small ball of earth and planted a foot apart each way, so leaving those from which they are thinned at the same distance. The moved plants form a succession to those allowed to remain on the earliest aspect. When the thinning-out is completed, fork up the surface with a steel fork, and give copious supplies of water in warm weather. On light dry soil a mulching of manure is of great service. A Lettuce that is allowed to become leathery and bitter is amongst the most distasteful things a garden can supply, while a highly-cultivated crisp one is among the most acceptable. Those who can afford to cover part of those by the wall-side with hand-glasses, as the French do with *cloches*, will of course be favoured with much earlier Lettuces. When the genuine variety of the Hardy Brown Cos is procured, they rarely ever require being tied up to blanch them properly, unless it be a few at first for the purpose of getting these blanched as early as possible. This variety of Lettuce, when well blanched outdoors in May, we have always regarded as amongst the most crisp and pleasant-flavoured grown.

To keep up an unbroken succession, it is necessary to sow more seed in heat, to be forwarded, so as to come in before those transplanted from the bottoms of walls are over. About the middle or end of February sow either in boxes or in a bed of soil where a temperature of 60° can be had. When large enough to handle, and before they become in any way drawn, prick up into frames about 2 inches apart each way. About a couple of feet of tree-leaves trodden into the frame and 4 inches of light rich soil answer this purpose well. As soon as they begin to grow freely more and more air should be given, until the lights are taken off entirely for a while before being planted out. When planted out, a portion of them is put on an early south aspect, and a portion on a later exposure, so as to form a succession. Rich soil, and in all respects liberal culture, are necessary for them. At the time the early sowing is put in in heat, a sowing is put in on an early border under hand-glasses, or in a cold frame, to form a succession to those sown in warmer quarters. For these two sowings I prefer the Paris White Cos, which is in all respects a superb Lettuce.

To keep up an incessant supply of Lettuce all summer and autumn it is necessary to sow at intervals of ten or fourteen days. And in England more particularly, where the summers are hotter and Lettuce

more apt to run to seed, it is a good plan to plant from the middle of June till the middle of July on north borders, and to manure, water, and mulch liberally. Another excellent practice is to sow in drills a foot apart, and as soon as they are in rough leaf thin out to 6 inches between the plants; and finally thin out every other plant, transplanting those last removed to make a succession. Making three or four sowings in this manner during the heat of summer is one of the surest ways of keeping up a supply, as they are not so apt to run to seed as transplanted plants. In the heat of summer, on light soils in hot parts, it requires liberal doses of manure and deep trenching to produce fine Lettuce; while in Scotland, in ordinary seasons, I have seen the very finest Lettuce produced on Celery-ridges planted in June. The great depth of soil afforded by the ridge to some extent accounts for this result.

After the middle of July the sowing of the more tender summer varieties should be discontinued, for they are apt to suffer from damp when the colder and damp nights of autumn set in; and the finer and more blanched, the more susceptible they are of being injured. Two sowings of the Hardy Brown Cos made about the 12th and 24th of July keep up a supply till December. The earlier of these two sowings will give the last supply from the open ground, and later sowings can be lifted and put into frames as soon as there is danger of frost severe enough to injure them. Where there is accommodation, another sowing of the same sort should be put in the first week in August, to be planted in open cold pits or frames, where they can be protected with glass to bring them safely through the winter for early spring supply, for if above a certain size they do not stand without protection. Thus there are a lot of plants fit for use in the early part of November, either to be protected where they are grown, or to be carefully lifted with balls and put under the protection of glass if possible; and a later set to put under glass, to be fit for use from Christmas onwards through the winter. They are as much likely to be injured from a damp stagnant air in frames or pits as from frost. The situation should therefore be open and well exposed, and well aired on every favourable occasion.

The varieties of Lettuce that are found most acceptable are the Cos varieties. The Cabbage varieties are more apt to be termed frothy by butlers, and I have known them objected to entirely by some salad epicures. The Neapolitan and All-the-Year-Round are, however, excellent Lettuce; and the Hardy Hammersmith is useful from its hardiness, for if sown in August it stands the winter well and comes in early. The little-known Gothee variety, which makes a compact hard head close to the ground, is fine-flavoured, and stands longer than

any other before running to seed. The Paris White Cos, London Market Cos, Moore Park, Alma, and Holme Park, are all excellent Lettuce, and form sufficient variety, with the hardy sorts previously referred to, for almost any establishment.

D. THOMSON.



THE CULTIVATION OF HARDY FRUITS.

THE APPLE.

(Continued from page 301.)

I now come to speak of the diseases to which the Apple is subject in Britain; and first of all I would refer to canker. This is the greatest enemy, and perhaps the worst to master, of all the ills against which the cultivator of the Apple has to contend. As I hinted in a former portion of this article, it is my humble belief that it is both constitutional and hereditary to a very great extent. My conclusions on this point are arrived at after long watching and close observation made upon hundreds of varieties of the Apple. It must have been observed by all gardeners that several varieties are far more liable to canker than others which may be growing side by side with them in the garden or the orchard. And, further, I have seen young trees (maidens) received from the nursery apparently in the best health, which, during their first year's probation, succumbed to the ruthless power of canker. How is this to be accounted for? What answer, my reader, would you give to your master if the half of a quantity of young trees bought in during the current year should die upon your hands ere 1870 should close over your head? Very probably you will say, "Why, sir, they have died of canker." Now this is all good enough so far as it goes, but should he further argue that canker is a disease which is brought on by surrounding circumstances—either a wet subsoil, a bad climate, a wound from the spade, the hammer, or the knife; and that he cannot see why in the course of one short year canker should have destroyed one half of the trees—what would you answer? If you will allow me, I will tell you what answer you ought to make. It must be evident that for one year they cannot have been so badly managed as to bring the disease upon them to such an extent, so the answer must be that the disease in this case was constitutional and hereditary. In such a case as this, the scions must have been taken from old trees full of the disease, which, however, the energy and power of a healthy stock have prevented from yielding to its baneful influences while in the nursery and during its first year's growth. The lifting, however, with the subsequent

transportation and replanting, works a wonderful change. The stock by the operation loses a considerable amount of its strength and vigour; the roots have been cut and pruned so that the plant loses a considerable amount of its feeding powers, and with it the constitution is to a certain extent reduced—not, however, so far as to be of the least injury to a healthy plant, but far enough to do all the evil possible where the tree has already got the seeds of disease flowing through its blood. This reduction of the strength and vigour of the tree gives the first opportunity to the disease to make its appearance. While the stock is struggling to overcome the check sustained by transplanting and root-pruning, the circulation of the sap is neither so great, so swift, nor so regular, as may be easily seen from the late start and weak shoots formed by such a tree when compared with one which has not been removed; consequently, the discharge from the tree to the soil will also be less regular and less in quantity. If this be the case, as it must be, then the tree to a greater or less extent must be living upon itself, and the seeds of the disease are thereby getting an opportunity to disperse themselves over the whole body thereof. As soon as this has taken place the case is hopeless—the tree is doomed. No known power of the gardener can save a tree when it has arrived at this stage. He may struggle with it and cut as he will—his labour in the end will be lost. This is a lesson to us all, which shows us how much we are in the power of the nurserymen; and I am sorry to think that so much of the want of success in fruit cultivation is due, not to the mismanagement of the gardener, but to the carelessness of the nurseryman and raiser of fruit-trees. I will not deny the fact that there are a few good firms which may be thoroughly relied upon to provide good and healthy trees true to name. For every firm, however, for which this can be said, a dozen can be pointed to which are just the reverse. Now it would be good for gardeners, and it would be good for nurserymen themselves, if this were not the case. How much more satisfactory it is for the buyer, and must also be for the seller, where everything gives satisfaction! That satisfaction may be given, it is necessary that the scions be selected with the greatest care from trees of the most undoubted health, where canker never has been. It is very often the case, however, that the scions are obtained from some garden or orchard near by, and some young man is sent to gather them who neither “kens nor cares” whether they are from healthy trees or not. In this case he gathers all he can lay his hands upon, from trees old and young, healthy and diseased; he puts them into bundles which go into the nursery to spread the disease—I had nearly said from pole to pole—from Land’s End to John o’ Groat’s. Avoid, therefore, the diseased parent if you wish to become the possessor of a

healthy offspring, for the seeds of disease in the parent stem are sure to manifest themselves in the sapling twig.

Although both constitutional and hereditary, canker is also a disease which may take hold upon the Apple through the effects of surrounding circumstances. In short, canker in this form is nothing more nor less than the want of constitutional vigour for a lengthened period. If a tree is so placed that the food within its reach is not of the kind and quality necessary for it—if the temperature of the soil is too cold or too wet—then the inevitable end of the matter will be canker and decay. It will be years, however, before it makes its appearance in a tree which has been healthy and good in a young state. As a rule, if the soil of the garden is at all like suitable for the Apple to the depth of 18 inches, it will be very bad management indeed if canker should make its appearance during the first dozen years of their existence there. If the instructions already laid down are attended to with regard to root-pruning, &c., it may be avoided altogether. It will thus be evident that root-pruning serves a double purpose—first, in bringing the young tree into a good and early fruit-bearing condition; and, second, in keeping it in the same by guarding against canker, and keeping it in a genial temperature and within reach of wholesome food.

It will be quite unnecessary for me to enter into details explaining what canker is, as it is well known by every one who has ever had the most limited collection of fruit-trees under his care. In the case of receiving under one's care a collection of trees which are suffering to a certain extent from this disease, the first thing to be done, if the trees are worth the trouble, is to have them lifted and examined, the bad roots cut away, and the tree planted in good fresh soil. Let the branches also be examined, and all cankered portions at once removed. This may prove of very much advantage to the tree for many years, yet the fact need not be disguised that the tree will never be the same again as if it had not suffered from the attacks of the disease. I would almost recommend in every case of this sort that a collection of young trees be bought in to take the place of the older ones; retaining the older ones, however, until such time as the young ones are brought into a fruit-bearing condition. Although old ones may give satisfaction for a few years, yet nevertheless, if they have suffered from an attack of canker, the health and vigour of treehood, if I be allowed to make a word to answer my purpose, will have gone for ever. I know of no disease to which humanity is heir which is so analogous to canker in a tree as that of consumption. Now admitting this fact, it must be evident that a tree which has once suffered by it can never be the same again, for it is a well-ascertained fact that a man who has

been *cured* from the earlier stages of consumption has never the vigour and energy of one who never has been attacked at all.

Mildew is another disease which frequently attacks the Apple, especially in dry seasons such as the present. Some kinds are more liable to its ravages than others. The more delicate and tender sorts often suffer much, while those of a stronger constitution escape, thus giving effect to the general law of nature that the weak shall suffer first. Mildew makes its appearance upon the young leaves and shoots of fruit trees early in summer. A deposit of matter, giving the branch the appearance of having been dusted over with flour, makes its appearance. When touched with the finger it has a soft uncomfortable feeling. This matter is no less than a parasitic fungus, having life and growing, and in course of time sending off millions of little spores, which, borne upon the wings of the wind, may be carried to far and distant climes, there to work havoc upon the fruitful trees of sunny lands. I am of opinion, however, that dryness is not the sole cause of its appearance, and that it is not created for the time being and then for ever dies, but that it lives and dies generation after generation, the same as any other member of the vegetable kingdom. Seeing this to be the case, I further believe that cold easterly winds help to bring it to us; that it would matter little whether the season were dry or not; if the wind kept always in the west, we would have little or no mildew upon our trees. I am therefore of opinion that the state of the atmosphere during cold sharp east winds is such as to be most conducive to the spread of this disease. Then it is dry, searching, and sharp—the spores will also be dry, light, and easily upborne; and with all these things working together for its migration, it need not be doubted, and I firmly believe, that it may fly for hundreds of miles, borne upon the wings of the wind, ere it lodges upon the branches of our trees, and becomes the mildew of the fruit cultivator. Dry sulphur, blown on with a sulphurator or sulphur-box while the dew rests upon the branches, will be found to be the best remedy which can be applied.

JAMES M'MILLAN.

(*To be continued.*)



NOTES ON HARDY HERBACEOUS PLANTS.

ANDROSACE.—This is one of the prettiest of the genera of Primulaceæ, and a most interesting group of alpine plants. Several of the species are annual, others are biennial, but the greater number are perennial, and all are rather difficult to keep under ordinary conditions near the

sea-level. They are all strictly alpine plants, and are hardy enough to resist successfully the severest temperature we are liable to in this climate ; but a moist stagnant atmosphere they cannot endure. Abundant moisture at the roots is delighted in by all the species, provided the drainage be good and the soil open and porous ; but the foliage of all the densely hairy species at least should be kept dry in winter and protected from battering rains. The soil should be open fibrous peat and loam, in about equal parts, and should be well sharpened up with gritty sand ; and in the case of two or three species a little pounded limestone will be found advantageous. These species are *A. lactea*, *A. villosa*, and *A. cylindrica*.

A. Chamæ-jasme, from the Alps, generally grows about 4 or 5 inches high, with weakly trailing branches, bearing a few small lanceolate leaves at the extremities ; leaves and branches alike covered with long spreading silky hairs. The flowers are white, with yellow—often red—eyes, and are produced in small dense umbels about June, and continue till August.

A. villosa forms small cushion-like tufts 2 or 4 inches high ; the leaves are small in dense rosettes, and are covered with long shaggy hairs. The flowers in small umbels are pure white, with yellow or red tubes, and are of considerable substance. They appear in June and July. Found on the loftier mountains of Europe generally.

A. lactea, from the Alps, is a pretty little tufted species, with deep green ciliate leaves, and rather large showy white umbels of flowers ; appearing from June till August.

A. lanuginosa is rather loose, trailing, and spreading in growth, with rosettes of oval lanceolate leaves at the extremities of the branches, covered densely with silky-white close-lying hairs. The flowers in small loose umbels are large individually, pink, with a yellow eye, and appear in June and July.

A. carnea is not one of the best, but is one of the earliest flowering of the family. The stems are tufted, and terminate in rosettes of almost awl-shaped leaves, from which spring the pretty umbels of pink or rose-coloured flowers with yellow tubes ; flowers in May and June. From the Alps and Pyrenees.

A. cylindrica, from the Pyrenees, is closely tufted in habit, and the small lanceolate blunt leaves are closely imbricate. The flower-stalks are simple, and rather longer than most of this section of the genus. The flowers are pure white, and appear in July and August.

A. ciliata is one of the most beautiful of the group. It is also very easy to distinguish from any of the foregoing by the inflorescence being simple instead of compound. It forms dense cushions of closely imbricated ciliate foliage. The flowers are numerous, variable in

colour, being pink, rose, and sometimes purplish or pale violet, and appears in June and July. From the Pyrenees.

A. Helvetica is densely cushioned in form, and the leaves are lanceolate and closely imbricate. The flowers are almost stalkless, and, like those of the last species, are produced singly at the terminations of the branches; they are pure white, and appear in July and August.

ARETIA.—This is another genus of Primulacæ, and is very nearly allied to Androsace. It is alpine, and must have the same treatment as Androsace.

A. Vitaliana, called also *Gregoria Vitaliana*, is very prostrate in habit, with numerous stems clothed with linear acute leaves. The flowers are yellow and numerous; they appear in May and June. It forms a very beautiful object on rockwork, and is not so difficult to manage as some of the Androsaces.

W. S.



HINTS FOR AMATEURS.—AUGUST.

At this season, in most gardens, watering (with liquid manure if it can be had) may be done freely among all growing crops, especially Pease, Cabbage, Cauliflower, and Lettuce, which are expected to turn in soon for use; and on sandy soil a good mulching is of great service. On such soil it is difficult to secure good Pease without plenty of moisture at their roots. Where Pease are growing freely, and turning in earlier than desirable, the crop may be prolonged by lopping back gross shoots, and keeping the pods clean picked off as they become fit for use. Keep an open surface wherever the hoe can be used, especially among Broccolis, Brussels Sprouts, Kale, and other winter vegetables. When Turnips, Potatoes, and other crops are cleared off, let the ground be filled up with something that may be in demand in winter or spring. Kales, Carrots, and Spinach will be very useful; no ground should be left as a harbour for weeds. Endive, Lettuce, and all other salads, may be sown again for autumn and winter use. Sow Early Horn Carrots for a supply of small roots (so much in demand by some). They can be protected through the winter, and drawn as required. Sow more Cabbage, which can be pricked out to stand the winter for spring planting. Coleworts planted thickly apart at this season will come in useful in early winter; though they may only have leaves, they are very tender and sweet. All the smaller kinds of early Cabbage, if planted now, are often of great value in mild winters; well-worked ground, with thoroughly decayed manure, is necessary to grow them freely. Onions to stand the winter may be sown now; a sheltered position is of advantage, but should not be

shaded by trees, &c. Turnips may be sown for spring use. Strap-leaved and Early Stone often can be had in February and March from autumn sowings; when drawn from the ground they are more juicy than when kept in pits, &c. Let all salads, Cauliflower, &c., which are to be kept under protection through the winter, be pricked out before they are weakened by drawing up in the seed-beds. Celery for early use should now be kept well earthed up, first giving a good soaking of water, if necessary; then dust with lime, if slugs are at all troublesome. Keep the earth out of the hearts of the plants to prevent rotting. We have seen fine useful Celery planted in the south as late as August. All the later crops should have plenty of moisture at the roots if crisp Celery is wanted. If Onions are growing strongly still, they may be twisted at their necks, which will hasten ripening. Seeds to be saved will now require attention; if cut in small bunches and placed in the sun they will do well. Dryness is of great importance to all seeds when ripening. Tomatoes will now require close topping, and where the fruit are too numerous they may be thinned off; and except means can be afforded to ripen the fruit, none need be allowed to set after August. On the walls protection can be given to keep them in bearing. On the back walls of our sunk pits they are doing admirably, and the wooden covers can be pushed on when frost makes its appearance. Dung for Mushroom-beds may be collected and allowed to dry moderately; then throw it in a heap to heat, but not to burn. The beds can be made in sheds or anywhere, but where there is proper protection much labour is saved—1 foot deep of horse-droppings, thoroughly beaten firm, and allowed to heat before the pieces of spawn are put in (care being exercised to prevent overheating, by making a number of holes in the bed to let the heat escape). The bed is thus made, and ought to produce Mushrooms with little further trouble at this season. The covering of earth should be good, healthy loam, soft and rich, and placed 2 inches over the surface a week or so after the bed is spawned. The size of bed will be regulated according to the demand. There are many opinions about spawning, but I have often abundance of fine Mushrooms by placing the spawn an inch or two deep in the dung, and 10 or 12 inches apart. The pieces are broken up about the size of pigeons' eggs, and any of the cakes which have no spawn in them are discarded. The bed should remain untouched for five or six weeks after spawning, then tepid water may be given sufficiently to moisten through the covering of earth. Heavy drenchings of cold water destroy the spawn, but a moist atmosphere is beneficial. Small beds made frequently keep the most regular supply; besides, it is not always convenient to secure large quantities of manure for the purpose.

Strawberries which are done with should be trenched down ; others which are to stand should be cleared of all runners, mulching, decaying leaves, &c., and the surface of the soil pointed over with a fork, or the hoe used freely. The more attention given now, the better will the plants be able to give a good supply of fruit next season : plants in preparation either for forcing or for planting out require liberal supplies of water overhead as well as at their roots. Those in pots require turning round, and the roots should be prevented from growing through. Cucumbers which have been bearing freely may be cut in a little, and a good surfacing of turfy loam and a little decayed manure given. A good watering with tepid water will be of great service where roots are very plentiful, and a good lining of manure placed round the plants to encourage free growth. Thin Vegetable Marrows : they require plenty of room to grow. When watering this class of plants, it is necessary to find the extremities of the roots, as continued watering near the necks of the plants, leaving the feeders to perish, soon brings on disease. Trees require to be looked over, taking away any leaves or shoots that may be shading the fruit, pushing them aside, or taking them off if they can be spared. Summer nailing, tying, &c., are generally finished this month, so that the shoots may have the full benefit of the walls while there is sun to prepare them for fruiting. Flies, wasps, and birds are generally great enemies in gardens at this season. Hexagon netting or some other material should be used, or there will be much of the best of the fruit destroyed. If the weather should be dry, liberal soakings of water should be given to young trees ; and a good washing with a garden engine will be of great service in destroying greenfly, red-spider, and dust.

Anemone and Ranunculus seed may be sown early in the month (if not already done). Any of the common roots may be sown in rows in an open border, but the finer kinds should be sown in pans or boxes, or where they can be attended and protected if necessary. Auriculas can be potted now if they require it : their roots should be examined, and if healthy, and the pots are not well filled, they had better remain as they are. A shift to a larger-sized pot is necessary when there are plenty of healthy feeders ; when any of them are unhealthy, the sour soil may be taken carefully away, and good turfy loam and a little sand substituted. Re-pot in same sized or smaller pots, giving plenty of drainage : though loam and good rotten dung is often used when potting Auriculas, it is better to leave out the manure when roots are unhealthy, and cannot consume it. Attend to layering Carnations and Picotees, if not already done. Water carefully those which are rooting. Dahlias, Hollyhocks, and all border plants, should have all decaying flowers taken off as soon as they are observed, and should be well secured

to their stakes. Wind often does great damage when tying has not been well seen to. Chrysanthemums require plenty of water, otherwise they will lose their bottom leaves. Stakes may now be used to keep the branches in their positions, and from being crowded. All half-hardy plants in pots, such as Verbenas, Petunias, Calceolarias, Geraniums, &c., require liberal treatment now, as the plants are blooming freely. Manure-water will be of great service in keeping them vigorous. The surfaces of the pots cleared of old soil, and fresh rich loam and rotten dung given, will also aid root-action: no battered surfaces shrunk from the sides of the pots should be tolerated. Plenty of Pansy cuttings should now be put in; they are becoming one of the leading plants for bedding, and are easily managed. Imperial Blue, Clieveden Yellow, and some other distinct kinds, are of great value. A good stock of all hardy kinds of bedding-plants should be secured, especially where means are limited for keeping others through the winter. All kinds of plants for decorating the borders and beds should now be propagated without delay: boxes, pans, or pots, well drained with broken pots, &c., good loam, sand, and leaf-mould in equal proportions, suit most things; and a frame for Verbenas, Petunias, and similar soft-wooded plants, answers well. All they require is to keep them from flagging, and when there are signs of active growth, air must be given liberally to strengthen and establish the cuttings. Handlights and many other methods are adopted by amateurs, all doing very well: proper attention to moisture, shading, and air, however, are necessary to insure success. Geraniums of the scarlet class are generally placed in boxes of light loamy soil and sand, and set full in the sun, so that they can be easily removed to their winter-quarters when the season is further advanced. Cutting in and topping down plants in the borders and beds must not be neglected now, when so much of the appearance depends on orderly keeping. Plants allowed to grow over Box edgings or grass edgings have a slovenly appearance, and the edgings are frequently killed by such neglect. Roses which have flowered may have some of the shoots cut well back, and they will flower freely late in autumn. Keep all suckers closely cut off, and untie those which were budded early: cut off all unnecessary shoots from the stocks, to let the whole vigour of the plants be thrown into the buds. Any plants grown in pots, such as Lilacs, Deutzias, Kalmias, Rhododendrons, &c., should now be placed where they can have abundance of sun and air to ripen and prepare their flower-buds for forcing. Primulas, Cinerarias, and herbaceous Calceolarias for next winter, spring, and summer decoration, require plenty of fresh air, abundance of water (keeping clear drainage), and liberal shifts into good turfy loam, sand, and a

little leaf-mould. Primulas require lighter soil, with a little peat if it can be had: a frame kept facing the north will still suit them till the season advances. Keep down green-fly among Cinerarias and Calceolarias by the use of tobacco smoke judiciously used, so that the foliage may not be injured.

M. T.



THE QUINCE STOCK.

IT is with much pleasure that I lift up my pen to make answer to Mr Simpson's article on the above subject (see May number of the 'Gardener,' page 230). I am glad that he has procured for me this opportunity of more fully explaining one of the principal points referred to in my articles upon the Pear. He was right in surmising, as my articles clearly indicate, that I "would only be guided by considerations of soil and climate in adopting it [the Quince stock], in preference to the Pear, for standards or pyramids." Considerations of soil and climate I consider to be the first points to be studied by the gardener who has a desire to arrive at right conclusions regarding either the fruit, flower, or vegetable garden. The gardener who fails to consider these, and bring them to bear upon his everyday operations, cannot claim credit for any good results which may be arrived at, as they are the productions of mere chance, the soil and climate deserving all the praise. Change such a one to a different place or position, and the results will be very different: he, having only the mechanical knowledge, will work away in his own mechanical way; while he who has the theoretical, the practical, and the scientific all combined and finely blended together, will be able to arrive at much better conclusions, produce more regular results, and will be a man who will succeed, place him where you will.

I believe more men fail with the Pear upon the Quince, for the simple reason that they fail to perceive that a very different mode of treatment is necessary for the one than the other. It is no uncommon thing to hear a gardener say, "Well, I have discarded the Quince stock as useless. I planted a number of them with a number worked upon the Pear side by side; they all received the same treatment, and the end of it is, I would not see them about the place!" Now this is exactly what I find fault with. Such gardeners belong to the same class as those quack doctors, who will not be loath to make you believe that they can give a box of pills, or some other trash, which will cure humanity of all the ills to which it is heir. Let the gardener who plants Pears upon the Quince understand that he has

got a very different subject to treat than the Pear upon the Pear. The latter is in its natural and most congenial position ; the former is, as it were, a sojourner and a stranger in a foreign land. The former is sure to succeed if the soil and climate suit, if root-pruning is attended to regularly, and the tree kept free from its various and many enemies. But then there are many soils and situations where the Pear will not succeed upon the Pear unless deep artificial borders are made.

The west of Scotland, as I formerly said, is one of these, the average depth of soil in many of its districts not being more than 12 to 15 inches, while close beneath this lies a stratum of gravel highly impregnated with iron. Now, I will ask any reasonable man, will the Pear stock succeed in such a position, seeing that it must be utterly impossible to keep the roots from entering this bad substratum even suppose we had the power of root-pruning *once a-month* ? It might be possible for a few years, but only for a few. Almost as soon as the tree began to bear, disease, canker, and death would be draining its very life-blood out at every leaf. Another enemy we here have to contend against is wet ; and I believe and know *from experience* that the Quince is a better resister of damp than the Pear, where *properly managed*.

I have here about five dozen Pears on the Quince and five dozen on the Pear. They are open for inspection to every inquirer. They are five and six years of age, and I have no hesitation in decidedly affirming that those upon the Quince are the best trees, produce the best wood yearly, which ripens as hard and brown as a Vine, and, to add to all, their appearance is much more handsome ; and from what I have seen elsewhere, when they arrive at full bearing, the Quince will prove the more profitable investment of the two.

Those worked upon the Pear will be root-pruned this year in autumn, which will be the second time during their five years' existence, and in some cases it will have been oftener.

Those upon the Quince we manage in quite a different way. Every year, or at least every two years, we cut a trench round each plant, being as careful as possible not to injure one of the roots. We often remove the soil away from them to a little extent, to enable us to get the fresh materials placed as near the body of the roots as possible. This being done, we introduce a fresh mixture of richly-manured loam, placing the roots which were laid bare into their position as we proceed. We also proceed to uncover the upper surface all over the extent of the plant to the depth of 3 or 4 inches, or until we find that we are coming into contact with the upper roots. Into this we place 3 inches of good rotten dung, covering the whole over with an inch

or two of soil. Now no one can deny but that there is as little trouble in doing this as in root-pruning ; and if this be the case, and the after-results prove better, the advantage entirely lies with the Quince stock.

Our reasons for proceeding upon these principles with the Pear upon the Quince are as follows: The Quince, as every one knows, is a weakly grower compared to the Pear, therefore by placing the Pear upon it we are imposing a burden greater than it can bear in a natural way. We therefore are hard taskmasters, and worse than Pharaoh, who expected the children of Israel to make bricks without straw, if we do not use the means, by providing the meat ready at hand for the use of the Quince, so that it may be enabled to procure at once an abundant supply of food for the capacious stomach of its glutton brother who is saddled upon its back for life.

It is impossible that the Quince can do the work required of it by the Pear without assistance, and it is still more wonderful that so many intelligent and able gardeners should expect it to do so. It is as if, should we choose to place the donkey in the horse's cart, the donkey should be expected and compelled to bear the horse's burden.

I trust, if I failed to convey my full argument upon "The Quince stock" when treating of the Pear, that I have now done so. No doubt others may have different opinions upon the matter in hand, and if they have found the issue of their labours different from mine, they are quite entitled to hold their ground with steadiness and firmness ; but if those who are of the reverse opinion to what I am will give my principles a fair trial, I have no doubt that in the course of a few years their war-cry at the "battle of the Pears" will be, "The Quince! the Quince for ever!"

I am much obliged to Mr Simpson for the very kind and gentlemanly manner in which he opened up the subject, and trust that what I now have said may prove of interest to the many readers of the 'Gardener' who may not have fully understood the ground upon which I defended the Quince.

JAMES M'MILLAN.



SPRING GARDENING AT BIRMINGHAM.

FOREMOST of all the illustrations of spring gardening I have been privileged to look upon this season, stands that almost unrivalled garden in the grounds of the Holte Hotel, Lower Grounds, Aston, Birmingham. Better than Belvoir, with its vast and elaborate arrangements ; better than Cliveden, with its immense masses of colour and its grand surroundings of rich scenery and woodland ; better than

Nuneham, with its much more minute and artistic arrangements; better than all these in this, that the Aston garden is an outcome of private enterprise—designed, planted, and sustained as a place of public resort, to which can come the almost teeming multitudes that inhabit the immense borough of Birmingham, and see, in all their simplicity of beauty, how wondrously attractive common flowers may be made, where an enterprising genius, a true artist in the exquisite arrangement of harmony and distribution of colours, and the large heart of a true social philanthropist, wields the almost magic wand by which so much of freshness and beauty woos, and woos successfully, the sons and daughters of toil to gaze on that which to them is full of new wonder and delight, and capable of satisfying aspirations and awakening capacities the bountiful heart of nature has committed to such agencies to call into active and harmonious play.

The grounds of the Holte Hotel are a part of the Aston Park estate, but divided from it by the main road which runs from Aston to another of the wealthy suburbs of Birmingham. It is simply a place of public resort for the people of Birmingham, where amusements and sources of recreation are provided, with delightful walks and charming gardens, but without the admixture of a single coarse feature. It is a kind of Sydenham Palace, having all the characteristics of the outer grounds without the palace of glass, but yet having musical and other features of a high and elevating order. There are two great lakes of several acres in extent—one kept as a home for wild-fowl and ornamental water-fowl, with overhanging umbrageous trees, under which are shady and pleasant walks; the other, for boating and fishing. There are also archery, croquet, cricket, bowling, and quoit grounds; a large concert-hall for public gatherings, theatricals, concerts, and, under the strictest and most severe supervision, dancing. There are also extensive refreshment-rooms, where large parties can be entertained; and in addition to these, charming pleasure-grounds and promenades, and a first-class band of music performing every day. Thousands enter these gardens the year through, and it is always pleasant to note what a chief source of attraction are the gardens, with their vari-coloured beds, and specimen ornamental trees, and extensive greensward—

“With singing birds and balmy flowers,
Creatures of beauty and delight,”

where the visitors love to linger in the calm twilight—

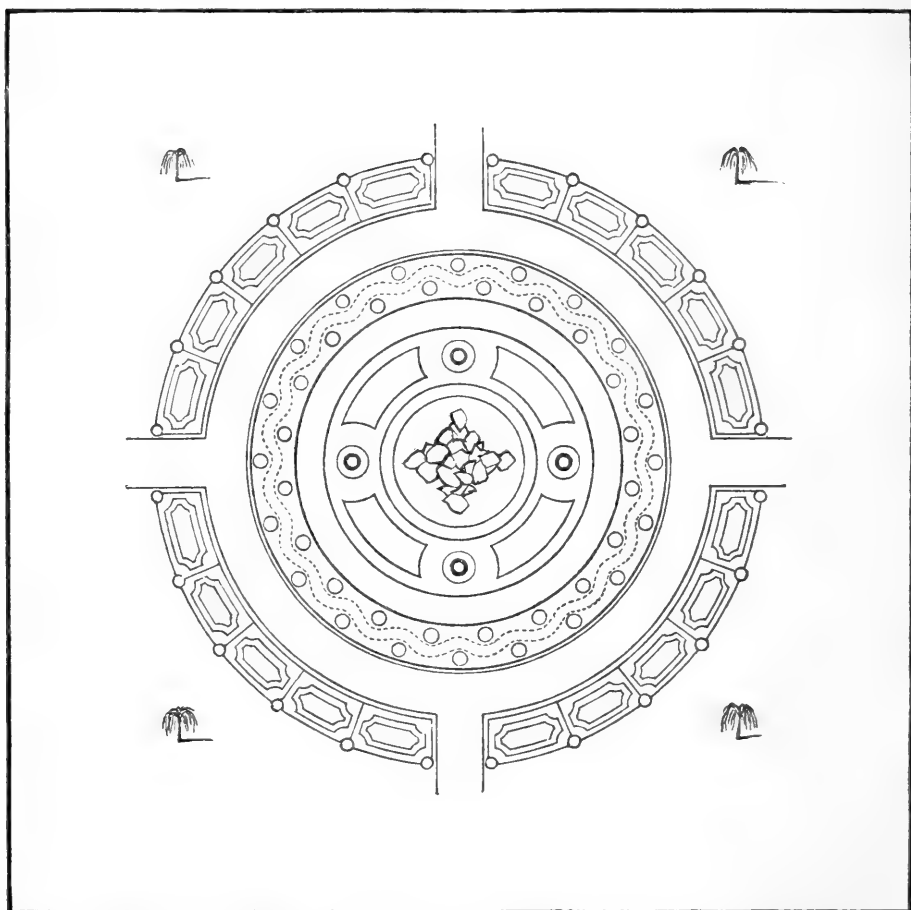
“When the fragrance of flowers is lightly
Awaft on the soft evening breeze,
Whilst the pale moon is glinting so brightly
With silver the tremulous leaves.”

There is also another use in these grounds : they serve as a kind of school of instruction for many of the surrounding gardeners, who are far removed from the centres of horticultural enterprise and activity. The proprietor, Mr H. G. Quilter, although not a practical horticulturist, is yet alive to the importance of introducing any new feature into his bedding-out system ; and new designs and new agencies are instantly seized upon as soon as they present themselves, if they can be turned to account, with the best possible results. Even subtropical gardening is here extensively carried out and much appreciated, though it is amusing in the highest degree to stand by one of the raised beds in which the curious *Echeveria metallica* plays an important part, and listen to the altogether unique criticisms which fall from the lips of some of the excursionists from the "black country," of which Birmingham may be regarded as the metropolis.

In the centre of the grounds stands a walled-in garden of 4 acres, in shape a square, and formerly the kitchen-garden belonging to Aston Hall. While flower-gardening is largely carried out in various directions outside this central garden, it is within it that it is most elaborated. Broad gravel-walks, running from east to west and from south to north, and intersecting each other in the centre, form a kind of Maltese cross ; and at a certain distance from the centre, each arm of the cross opens out, as it were, and embraces a large oval bed, occupying the centre of the walk. A border some 8 feet in width is on either side of the gravel-walks, and rises from the path-level to a height of 3 feet in the middle, forming a kind of ridge, and falls away to the ground-level on the other side. This gives an 18-feet border, raised considerably in the centre. This raised border and the gravel-walks form the cross, the angles being filled with turf, on which are flower-beds of various shapes and sizes, specimen trees, ornamental shrubs, &c. The centre of this garden appears in the plan on next page. The outer border of the plan represents one-half of the sloping bed—that falling inwards to form the centre of the cross.

This central garden, as given in the plan, is to some extent complete in itself, as the summit of the sloping bed (forming the exterior of the plan) has a kind of fence of galvanised iron, the top of which hangs in the form of festoons, like the "slack rope" on which an acrobat performs. Each circle on the exterior of the plan represents a standard plant of *Acer negundo variegata*, immediately under the silvery-foliaged head of which the extremities of the festoons meet. This iron fence is covered with Irish Ivy, and gives an admirable background to the flower-beds in front and at the back of it. The openings made by the walks are overarched by strong and elegant wire archways of ornamental designs, and from the centre of each is suspended a handsome hanging

basket of plants. These arches are covered by Hops, quick-growing Climbing Roses, Clematises, &c. As the wire arches spring from the back of the border as given in the plan, the corresponding corners where the path opens out from the circle are occupied by vases of flowering plants fixed on pedestals. Inside the Ivy fence is a circular line of Yews, forming a hedge about 4 feet in height, and at intervals standard Roses are planted in the hedge. The straight lines running from back to front, forming the divisions of this border into



oblong beds, are composed of dwarf Spruce Firs, kept clipped to a minimum height of 12 inches. The outline of the angular oblong panel within each division is formed also of a double row of Scotch Firs; these are used only at the time of planting out for the spring display, and are removed when the summer bedding plants are placed out.

The spring display of these beds was arranged thus: The space between the double row of dwarf Firs was filled with double red Daisies, with a line of the variegated *Arabis mollis* between the Daisies and

Firs; outside the inner panel formed by the Firs, and all round it, was a line of *Stachys lanata*, and at each angle a patch of *Aubrietia purpurea* in the form of the segment of a circle. This arrangement was carried through the whole series of beds forming the outside circle. In the centres of the beds the arrangement alternated with the next bed; either it was a centre of the pink *Silene pendula* mingled with double crimson Tulips, or a centre of blue Forget-me-not mingled with the pretty rose-flaked Silver Standard Tulip. Next the broad circular gravel-walk was an edging of turf, about 12 inches in breadth. It was a happy thought of Mr Quilter's to throw up this raised circular border: the area of this garden is so large that it requires some such arrangement to show off the fine effect of the masses of colour found here; and no one can give an idea of the splendour of the scene but those who have inspected it.

Turning now to the centre of this garden, the writer comes to speak of a display almost unparalleled in the history of spring gardening. The outside scroll-bed is on a level with the circular walk, and, with the sunken garden in the centre, may be said to be inlaid in turf. Next the scroll-bed, on the inside, is a sharp fall of some 5 feet, in the form of a turfy bank; then come four circular beds, each surrounding a pedestal supporting a vase, and four beds between them in the form of sections of a circular line. A fountain, rather below the level of this sunken garden, forms the centre, composed of "slag"—*i.e.*, the bluish-tinted rock-like refuse from the glass-works; a low stone basin contains the water. The double line round the fountain in the diagram represents a border; next the basin was a line of the common Fern of the woods; then, inside, a circle of Spruce Fir; then Wallflowers, edged with a circular line of showy gold-laced Polyanthes. Among the Wallflowers, Tulips were planted thus: at the back a row of double crimson, the remainder with the double yellow. The pedestals in the four small circular beds were also formed of "slag." The vases had been filled with Hyacinths, but these had been removed, and their place supplied with *Centaurea candidissima*. The beds at the foot of each pedestal were filled with *Echeveria secunda*. The other four beds were filled with *Silene pendula* as a carpet. From two of them rose a kind of canopy formed of the Silver Standard early single Tulip; from two others, the showy single Duchesse de Parma, red, edged with gold.

But *the* feature of the garden was the scroll-bed now about to be described. This bed is above 90 yards in length by 5 feet in width. The serpentine line was formed of a deep-coloured double crimson Daisy; while the rounded angles or groundwork of the bed were filled with the double white Daisy. On either side of the winding line of crimson Daisy was one of *Echeveria secunda*. The small circles on

the path-side, as seen in the plan, were formed of a small clump of the dark-foliaged *Ajuga reptans*, encircled by the pink double Daisy, which was again encircled with *Viola cornuta*. On the fountain-side the *Ajuga* was still employed as a centre to the circles, but surrounded by *Aubrieta purpurea*, encircled by the variegated foliaged double Daisy. This arrangement appeared to be perfect, and the mass of colouring very fine indeed. Mr Quilter stated that it took seven thousand Daisies to plant this bed alone. Looking at this display from either side of the garden on entering, a kind of irregular but large mass of colouring was perceptible; but as the visitor approached it, the exquisite arrangement became quite clear, and the mass of blended colours rose up, as it were, to meet the eye. Of all the manifold aspects of the gardens here, this scroll-bed was the most striking, and a sight of it would have amply repaid a journey from London.

In a flower-garden that exhausts above a quarter of a million of plants at bedding-out time, there must, of necessity, be many details that it is impossible to sketch within the compass of a paper of this extent. It may be stated, however, that there is a broad border under the wall on each side of this garden, some 10 feet in width, formed into diamond-shaped panels by the use of the dwarf Spruce Fir. On two sides of the garden these panels were filled alternately with blue, yellow, white, and purple Pansies; and on the two other sides with blue and white Forget-me-not and *Silene pendula*, used in distinct masses of colour. The angles, back and front, were filled with *Cerastium tomentosum*, which comes into flower almost at the same time as the spring-blooming plants; and when the occupants of the beds are changed, it is simply necessary to clip the *Cerastium* with a pair of shears, and then it likewise does good service as a foliaged plant the summer through.

It would tax the ablest pen to do justice to these grounds and their extensive floral decorations. The horticultural world should know how much is being done in the somewhat uncongenial neighbourhood of Birmingham to create and foster a love for flowers, and the incidents of horticulture there; and it should also know that the most gratifying results, both in a professional and a social point of view, have sprung from what has been so well attempted. The somewhat cynical American essayist who wrote of the English people that "they are proud and private, and, even if disposed to recreation, will avoid an open garden," could not have visited the Aston Lower Grounds. To these gardens come visitors of high and low degrees. In the presence of flowers and their intimate surroundings, the distinctions of caste seem to be (temporarily at least) laid aside. They still teach the great lesson drawn from their simple beauty by that wondrous Teacher of old, "that Solomon in all his glory was not arrayed like one of these."

R. D.

NEW PLANTS OF THE PAST MONTH.

(Continued from page 315.)

SINCE *Echeveria metallica* came to be generally known, together with those very useful dwarf-growing forms, *E. secunda* and *E. secunda glauca*, several more have been obtained, either by introduction or from seed obtained by crossing some of the other kinds. Like the progeny of many other plants, seedlings raised from seed of *E. metallica* show a tendency to come varied in character, and some handsome new types have been obtained, both from seed of the well-known species and as the result of crossing it with others. Foremost in the work of hybridising has been Mr Robert Parker, of the Exotic Nursery, Tooting, who has been most successful in obtaining some new forms, quite distinct in character, and of these the following have received first-class certificates: *E. glauco-metallica*, *E. grandiflora*, and *E. secunda glauco-major*. Equally successful has Mr Parker been with the *Sempervivums*, and of these the following have received first-class certificates: *S. canariense*, *S. cuneatum*, *S. calcaratum*, *S. urticans*, and *S. glaucum*. The same award was made to Mr Parker for a capital form of *Saxifraga longifolia* named *Vera*.

Double-flowering *Pelargoniums* are rapidly on the increase—would it were possible that distinctness kept pace with the multiplication of numbers! First-class certificates have recently been awarded to William Pfitzer, deep scarlet; Victor Lemoine, glowing crimson, the florets broad and stout; Marie Lemoine, a pleasing soft pink flower. These show an advance in point of habit also; what we want is compact bushy habits, not a tall lanky style of growth. As the foregoing have been widely distributed, they are now being exhibited by all cultivators.

Of Bedding *Pelargoniums*, Mr George Smith of Islington, whose name is so worthily associated with the improvement of the Nosegay *Pelargoniums*, has received a first-class certificate for Mr Gladstone, a fine crimson-flowered variety, with huge trusses of bloom; Mr J. George of Putney, for Harry George, a very fine variety, with bold trusses of deep orange rose-coloured flowers, a good exhibition kind; and to Messrs Downie, Laird, & Laing for Empress Eugenie, one of their fine gold and bronze varieties.

A first-class certificate has been awarded to Mr William Paul for Hybrid Perpetual Rose, Princess Christian, a very delicate pink flower of almost perfect outline, but when exhausted shows a want of substance in the centre. It is a fitting companion to *La France*, *Baroness de Rothschild*, *Miss Ingram*, and *Madam Noman*, all of a similar shade of colour.

Lobelia Mauve Queen, shown by Mr Appleby of Brixton, was also

awarded a first-class certificate. It has good-sized pale rosy-lilac coloured flowers, of excellent dwarf habit, and to all appearance a continuous bloomer. It is a capital addition to these charming rose-coloured bedding Lobelias. Another thoroughly good thing was Perpetual Picotee, Prince of Orange, shown by Mr Perkins of Leamington, and awarded a first-class certificate. It has pale yellow flowers, of good size and substance, heavily edged with bright red, and will be of great service both for house decoration and to cut from.

A grand new imported *Cypripedium*, named *Parishi*, recently imported by Messrs Veitch & Son, has received a first-class certificate. It is quite distinct in character, and may be said to have the sepals of *C. lævigatum* and the labellum of *C. Hookeri*. The same award was made to Mr Bull for a very fine form of *Miltonia Regnelli* named *purpurea*; the same award to Mr Green, gardener to W. Wilson Saunders, Esq., for *Catasema*, species nova; and to *Brassavola lineata*, a white flowering species much fancied by Orchid-growers. Mr Edwards of Nuttall received a first-class certificate for *Pteris serrulata cristata magnifica*, a large growing crested form of this useful decorative Fern. Mr C. J. Perry of Birmingham has received first-class certificates for *Verbenas*, *J. Lawdon*, *Kate Lawdon*, and *J. Sanders*. As I am just about to inspect at Birmingham Mr Perry's new lot of seedling *Verbenas*, I will defer any description of these till I can place them before your readers as a whole.

Mr C. Noble, Bagshot, has been exhibiting his fine new red *Spiræa palmata* of late. It still maintains its reputation, and cannot fail to please all who may become purchasers of it, though it is somewhat doubtful if it will force well.

The Fruit Committee have just awarded Messrs James Carter & Co. and Messrs Hurst & Son a first-class certificate for Laxton's Alpha Pea, a very early blue variety, having a half-wrinkled character, and said to be as early as Sangster's No. 1. It is one of a very fine lot raised by Mr Thomas Laxton of Stamford, the entire stock of which has passed into the hands of the well-known firms named above. There are several points about these Peas worthy of a more extended notice, and I hope to devote a paper to them ere long. As an early variety, Alpha must stand A1 at the present time. R. D.



UNDER-GARDENERS' DIFFICULTIES.

SIR,—Will you allow me space in your magazine, the 'Gardener,' to say a few words respecting the young man's difficulties? At page 276 I have read F. W. B.'s remarks, headed 'A Word to Young Gardeners,' and I think some of F. W. B.'s remarks are very good; but he tells us at page 277 that he first started as "cock-

boy," his wages being 6s. per week, 2s. of which he paid to the head-gardener and 1s. for lodgings. F. W. B. does not mention if he boarded him, which I shall suppose he did, as he would only have 3s. per week to live upon. How can a head-gardener take from one that is under him 2s. per week to teach a young man? If this were carried out to a great extent, I think it would be one of the worst of a young man's difficulties that he would have to put up with. F. W. B. tells us that some people object to a young man paying a premium. I certainly must hold with that, because I think that if a head-gardener did his duty to a young man, he certainly would not want a premium from him when he has such low wages. I have at this present time a young man under me of the age of fifteen, but I should not take a premium from him; and my employer would think that I was not doing my duty if I took from him 2s. per week for what I should call teaching a young man. It is very true that there are too many of those come-day-go-day sort of men, which makes it bad for others; but I do not see why a young man cannot take an interest in gardening without paying a premium. To turn out a young man in the world, and see him get on, I think creditable to the head-gardener. But if a young man has to pay for it—I should say dearly—I do not see that he is beholden to the head-gardener. I cannot draw to a close without thanking the Editor for the many kind hints he has given us these last three years, and I do hope this magazine will soon be widely known.

RESPECT FOR THE UNDER-GARDENER.

[We fear the kindness of our correspondent's disposition has led him to take a one-sided view of this question. He must look at it from a purely commercial point, and he will see that the apprentice gardener, like every other apprentice, must in the outset of his career cause a considerable deal of trouble to his instructor, and that such instruction is to him of substantial value, and that he ought not to object to pay for it. The apprentice gardener gets off much easier in this respect than any other we know anything of. In nearly every other trade or profession high premiums have to be paid, either in cash-down, or, what is the same thing in the end, unpaid labour, sometimes for two and even four years; and well would it be for gardeners as a class if the same regulations were applied in their case. To have a thorough knowledge of horticulture requires as good mental powers, as elaborate study and instruction, and as close application as it does to be a physician; and who in his senses would ask a medical practitioner to take a young lad of fifteen and make a doctor of him, give his board and 4s. per week, and expect no premium from him, while his services in return would be the washing of bottles or the running of messages for some years? The real fact is, that the position gardeners occupy is vastly inferior to what it would otherwise have been had rigid rules existed to prevent the introduction into their ranks of men assuming the name of gardener, but having no more right to it than a working navy has to call himself a civil engineer. The employers of gardeners suffer more from this than legitimate gardeners themselves do. They too often look at the matter thus: They know that a man called a bricklayer can generally lay bricks, a carpenter can make a door or a window, and a gardener *ought* to be able to manage a garden; and when they meet with one who has managed to get a high recommendation from some person who is probably no judge of what a gardener should be, and who is willing to take £40 or £50 a-year, is it to be wondered at that they object to pay £80 or £100, though in the great majority of cases they had better have engaged the man at £40 and kept him idle, and paid a proper gardener in addition? We are quite aware, while saying this, that there are many excellent gardeners who, from the force of adverse cir-

cumstances, are compelled to take little more than labourers' wages. This is the fruit of allowing every ignorant boy who can get work in a garden to call himself at the end of three or four years a gardener.

We have been led into these remarks by an extensive acquaintance with the evils we have referred to. ED.]



HORTICULTURAL EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW, SOUTH KENSINGTON, June 2d and 3d.— This was a grand exhibition. Competent judges were agreed that it brought together the finest list of plants seen for a long time. But how can magnificent plants be seen to advantage in these horrible arcades?

Stove and Greenhouse, Flowering and Fine-foliaged Plants formed one of the main features of the exhibition, and were well represented in the various classes. Mr B. Peed, gardener to Mrs Treadwell, Lower Norwood, S., was first for twelve, with good specimens of *Franciscea calycina* and *confertiflora*, *Pimelea Hendersoni*, a good *Erica Cavendishiana*, a beautifully grown and flowered *Allamanda grandiflora*, and *Ixora coccinea*, and *Eriostemon buxifolius*, in fine condition. Mr Wilkie, the Gardens, Oak Lodge, Kensington, was second with *Dracophyllum gracile*, nicely flowered, *Pimelea mirabilis*, a good specimen of *Erica depressa*, *Francisca confertiflora*, &c.; and Mr J. Wheeler came third with well-bloomed specimens of *Erica Cavendishiana*, *Epacris miniata splendens*, *Aphelexis rosea*, and *Darwinia (Genetyllis) tulipifera*, &c. In the nurseryman's class for six, Mr B. S. Williams came first with a fine *Azalea Brilliant*, a well-grown well-flowered *Boronia pinnata*, *Pimelea mirabilis*, and a good specimen of *Phænocomo prolifera*, &c.; and Messrs Glendinning & Sons second with *Polygala oppositifolia*, *Eriostemon buxifolius*, *Aphelexis macrantha purpurea*, and *Stephanotis floribunda*, in good condition. The first for six was taken by Mr J. Ward, with good specimens of *Bougainvillea glabra*, *Clerodendron Balfourianum*, *Stephanotis floribunda*, *Aphelexis macrantha purpurea*, &c., all grand and well-furnished specimens. Mr Carr, gardener to P. L. Hinds, Esq., was second with fine young vigorous specimens, among them an admirable bush of *Phænocomo*; and Mr A. Wright, who had fine specimens of *Pimelea mirabilis*, *Ixora coccinea*, and *Dipladenia amabilis*, &c., was third. Mr W. Kemp was placed first for six in 12-inch pots, with tolerable examples of *Leschenaultia formosa*, *Aphelexis humilis rosea*, *Erica ventricosa coccinea minor*, *Azalea rosea superba*, &c. Mr Wilkie came second, and Mr G. Wheeler third, with plants of a very inferior character. The best specimen stove or greenhouse plant was an admirably-grown freely-flowered *Medinilla magnifica*, exhibited by Mr Wilkie. Messrs J. & C. Lee took the second prize with a monster specimen of *Erica Cavendishiana*, and an extra prize was awarded to Messrs Glendinning & Sons, who had a large and finely-flowered *Pimelea spectabilis*.

The best nine fine-foliaged plants came from Mr Fairbairn, Syon House Gardens, who had a good specimen of *Alocasia metallica*, *Ficus Porteana*, a well-grown plant; and a similarly healthy-looking *Theophrasta imperialis*, *Cocos nucifera*, very large; *Phoenix farinifera*, and a grand *Thamnopteris Nidus*, &c. Mr W. Taylor, gardener to J. Yates, Esq., Highgate, was second. In his collection were well-grown specimens of *Rhopala corcovadesis*, *Curculigo recurvata*, *Encephalartos Caffra*, *Dracæna lineata*, and *Dion edule*; and Mr Burley, Albert Nursery, Bayswater, third with a well-grown *Aralia Sieboldii variegata*, Cham-

ærops Fortunei, a very large, a very good *Dracaena indivisa*, *Dicksonia Antarctica*, *Eurya latifolia variegata*, &c. For six, the first prize was taken by W. Taylor, who had admirably-grown specimens of *Littæa juncea*, *Croton variegatum*, *Cycas revoluta*, &c. Mr Fairbairn was second with *Thrinax elegans*, *Latania borbonica*, *Anthurium acaule*, and a well-grown *Maranta rosea picta*, &c.; and Mr A. Wright third, showing amongst his group admirable specimens of *Pandanus ornatus*, and *Cupania filicifolia*, &c.

Ferns were numerous exhibited, and the collections generally were very effective. For twelve stove or greenhouse varieties, Mr A. Wright was first with beautifully-grown specimens of *Gleichenia semivestita*, *Brainea insignis*, *Blechnum corcovadense*, *Adiantum cuneatum*, *Cibotium Schiedei*, &c. Mr W. Taylor was second with a very effective group, in which *Cyathea princeps*, *Gymnogramma ochracea*, *Adiantum formosum*, *Cyathea medullaris*, *Microlepia strigosa*, *Davallia bullata*, &c., were well-grown examples. Mr J. Carr was first for six, with good specimens of *Alsophila excelsa*, *Adiantum Farleyense*, &c.; Mr Wilkie second, showing *Lomaria gibba* and *nuda*, *Cyathea dealbata*, &c.; and Mr C. Smith, who had good specimens of *Woodwardia radicans* and *Adiantum cuneatum* in his collection, was third. In Hardy Ferns, Messrs Ivery & Son, Dorking, were first with a group of charming plants, while well-grown plants of *Adiantum Capillis-Veneris*, *Onoclea sensibilis*, *Polystichum angulare* var. *proliferum*, &c., were shown by Mr C. Smith, gardener to C. Walton, Esq., Acton; and Messrs Salter & Son contributed *Struthiopteris Pennsylvanica*, *Osmunda Claytoniana*, *regalis rubra*, and *spectabilis*, *Lastrea Standishii*, &c., in excellent condition. For the best six Agaves, the first prize was taken by Mr B. S. Williams, who had nicely-furnished specimens of *geminiflora*, *filifera*, *longifolia*, *densifolia*, *Americana medio-picta*, &c.

Twelve varieties of *Coleus*, in 8-inch pots, was contributed by Messrs Downie, Laird, & Iaing, who took the first prize with *Princess Beatrice*, very showy; *Albert Victor*, very distinct; *Bausei*, *Prince Consort*, *Baroness Rothschild*, and *Her Majesty*; and by Mr Turner, who came second, with *Princess of Wales*, *Telfordi*, *Princess-Royal*, *Pretender*, and *Royal Purple*, a dark variety, after the style of *Berkeleyi*. Messrs E. G. Henderson and Messrs Carter & Co. also exhibited small though well-coloured plants of the now well-known varieties. These prove to be very effective plants for exhibition purposes.

New plants were not so numerous as on the last occasion. Messrs Veitch were first and second for the best six with *Thunia Bensoniæ*, *Darwinia fimbriata*, *Masdevallia Veitchiana*, *Nepenthes rubra*, *Iresine Lindenii*, *Anæctochilus Dawsoni*, &c. The same firm were also first and second for one new plant shown for the first time, taking the first with *Begonia Sedeni* and the second with *Masdevallia coccinea*, to both of which first-class certificates were awarded. For one new plant not found in commerce, the Messrs Veitch were again placed first and second with *Davallia Moorei* and *Croton Veitchii*, which were also honoured with first-class certificates.

New Roses were shown in good condition by Mr Turner and Messrs Paul & Son. In the former's collection *Paul Verdier*, *Souvenir de Monsieur Boll*, *Horace Vernet*, and *Princess Mary of Cambridge* were in fine order. The best nine came from Messrs Paul & Son, who had good specimens of *Juno*, *Victor Verdier*, *La Reine*, *Maréchal Vaillant*, *Céline Forestier*, &c. For six distinct varieties in 13-inch pots, Mr Turner took the first prize with well-grown and admirably-flowered plants of *Comtesse de Chabillant*, *John Keynes*, *Souvenir d'un Ami*, &c., and Mr William Paul the second with *Catherine Guillot*, *Lælia*, *Madame Charles Wood*, *Comte de Nanteuil*, *Auguste Mie*, and *Madame Clémence Joigneaux*.

Orchids were both numerous and good. In the class for twelve, Mr C. Young, gardener to W. H. Stone, Esq., M.P., was first with a good specimen of *Brassia verrucosa*, with about eighteen well-developed spikes, a nicely-coloured *Cattleya amethystina*, *Aerides Lindleyanum*, &c. Mr T. Burnett, gardener to W. Terry, Esq., Peterborough House, Fulham, came second with *Saccolabium præmorsum*, a good spike; *Lycaste cruenta*; a fine plant of *Cattleya Mossiæ*; and a very good *Cypripedium barbatum*: and Mr B. Peed, gardener to Mrs Treadwell, was third, showing amongst his collection some fine *Cypripediums*, *Epidendrum macrochilum*, *Vandas*, *Aerides*, &c. The first prize in the amateurs' class for six was taken by Mr J. Ward, gardener to F. G. Wilkins, Esq., who had *Cattleya Mossiæ* and *labiata*, finely coloured, *Vanda suavis*, &c. Mr A. Wright, gardener to C. H. C. Roberts, Esq., came second with *Odontoglossum hastilabium*, two good spikes, and *Aerides odoratum*, *Cattleyas*, *Oncidium*s, &c.; and Mr G. Young, third. The only collection shown in the nurserymen's class came from Mr B. S. Williams, to whom the first prize was awarded. In his collection were a large specimen with three fine spikes of *Cyrtopodium punctatum*, *Sobralia macrantha*, with large and beautiful blooms; a grand specimen of *Oncidium obryzatum*, *Odontoglossum hastatum*, &c. The best single specimen was a well-flowered *Cattleya Mossiæ*, sent by Mr J. Douglas, gardener to Sir F. H. Waterlow, Highgate. The second was *Vanda suavis*, furnished by Mr Parker of Tooting, and the third a fine plant of *Cypripedium barbatum grandiflorum*, from Mr Carson, gardener to W. R. G. Farmer, Esq., Cheam.

Heaths were indifferent on the whole; though here and there were a few good plants mingled with many of poor quality. Azaleas were much worse—large hideous plants, fit only for firewood. When shall we outlive these horticultural monstrosities?

Show Pelargoniums were staged in excellent condition by Messrs Dobson & Sons, who came first in the class for nine, with *Mary Hoyle*, *Pericles*, *Beacon*, *Caractacus*, beautifully grown and flowered to perfection. For six, Mr J. Ward came first, and Mr D. Windsor second, both contributing finely-grown plants of the usual show kinds. Messrs Dobson & Sons were again placed first in the class for six Fancies, with the following: *Roi des Fantasies*, *Annie*, *Ann Page*, *Godfrey*, *Lucy*, and *Celestial*; second, Mr C. Turner, with small but exquisitely flowered specimens of the following new kinds: *Lady Carrington*, *Princess Teck*—a perfect gem, a wondrously free-blooming light flower that must for every purpose drive all the rest out of the field—*Brightness*, *Mrs A. Wigan*, *Fanny Gair*, and *Excelsior*.

Of fruit there were some fine Peaches and Nectarines, Grapes, Figs, &c. The best Pine-apple was a well-grown *Enville*, weighing seven lb., sent by Mr Ward, gardener to T. N. Miller, Esq., Bishop's Stortford; the second, a very good *Queen*, about four lb., from Mr Budd, gardener to F. G. Dalgety, Esq.; and the third, *Black Prince*, furnished by Mr Wallis, gardener to J. Dixon, Esq., Astle Park, Congleton. The first prize for the best dish of black Grapes was taken by Mr J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Essex, who had three exceedingly well-finished bunches of *Black Hamburg*, which was the only variety shown in this class; the second was taken by Mr Bannerman, gardener to Lord Bagot, Blithfield, with small but nicely-coloured bunches; and Mr Sage, Ashridge Park Gardens, came third; while equal fourth prizes were awarded to Mr Miller, Combe Abbey, and Mr Eadley, Lee, Kent. Mr Miller's three bunches were large and well filled, but wanting in colour. For the best dish of White Grapes, Mr J. Douglas again came first with nine bunches of *Buckland Sweetwater* in good condition. Mr Miller, Combe Abbey, was second

with Golden Hamburg, large good-shaped bunches and good berries, but deficient in colour; and Mr Tegg, gardener to the Duke of Newcastle, Clumber, was third with fair bunches of White Frontignan. Of Peaches, good dishes of Royal George were shown by Mr Lynn, gardener to Lord Boston, Hedsor; Mr Sage, Ashridge; and Mr Miller, Combe Abbey. Mr Wilkie had a nice dish of Early York; Mr Tillery, the Red Magdalen; Mr Tegg, Bellegarde; and Mr Carmichael, gardener to his Royal Highness the Prince of Wales, some well-coloured examples of Stirling Castle. The first prize was awarded to Mr Lynn, the second to Mr Sage, and the third to Mr Wilkie. Mr Lynn also came first for Nectarines, with a very fine dish of Violet Hâtive; the second being taken by Mr Miles, gardener to Lord Carrington, with a good dish of Elruge, which was also shown in fair condition by Mr Hill, Keele Hall Gardens; Mr Carmichael, and Mr Gardiner, gardener to E. P. Shirley, Esq., Easington Park, Stratford-on-Avon. Good dishes of Pitmaston Orange, furnished by Mr J. Miller, gardener to Lord Foley; Hunt's Tawny, from Mr Tillery, and Brugnion from Mr Tegg, may also be mentioned as deserving of notice. Mr Carmichael took the first prize for the best scarlet-fleshed Melon with a well-ripened Scarlet Gem; and Mr Miles the second with a well-grown Royal Ascot, which latter variety was also sent by Mr Lynn, who came first in the green-fleshed class with a good-flavoured hybrid Cashmere; Mr Miles being second with Victory of Bath. Good examples of Queen Emma and the Worksop Prize-winner were also contributed—the former by Mr Gilbert, Burghley Park Gardens, and the latter by Mr Miller, gardener to Lord Foley. Three boxes only of Strawberries were shown; a fine box of British Queen, sent by Mr J. Douglas, taking the first prize; Mr Miles coming in second with well-coloured and good-sized Sir J. Paxton; and Mr G. Young third with Kimberley. A dish each of Black Eagle and Elton Cherries were contributed by Mr Miles, who took the first prize. For the best dish of Figs no first prize was awarded, the second going to Mr J. Day, gardener to A. Seymour, Esq., Norton Hall, Daventry, who had White Marseilles; and the third to Mr Miles, for Brown Turkey.

In the Miscellaneous Class, the first prize was awarded to Mr Miller, Combe Abbey, who sent a fine cluster of *Musa Cavendishii*; the second to Mr Budd, for some good-sized and beautifully-coloured Tomatos: and the third to Mr H. Whiting, Battersea Rise, for eight tolerably well fruited pots of Sir C. Napier Strawberries.

CRYSTAL PALACE, SECOND GREAT SHOW, June 5.—At this exhibition there was a large and excellent display of flowering plants, supplemented by an extensive exhibition of table decorations, which constituted a new and attractive feature. The day being one of the warmest and most delightful we have had this summer—in fact, the first real summer-day—the building and grounds were thronged with visitors.

The collections of stove and greenhouse plants were numerous, some of the highest merit, and, with a few exceptions, on the whole very good. Many of the plants had appeared at the Royal Horticultural Society's Show on the previous Wednesday and Thursday, and our notes, therefore, will be shorter than usual. In the nurserymen's class for ten, Mr Williams, of Holloway, was first, and had a fine specimen of *Phænocoma prolifera*, not yet in full beauty; *Anthurium Scherzerianum*, with nineteen spathes, and more advancing; *Stephanotis floribunda*; *Clerodendron Thomsonæ*,—not, however, showing so much of its crimson corollas as usual; *Azalea Brilliant*; *Aphelaxis macrantha purpurea*; an excellent *Dracophyllum gracile*; *Pimelea decussata*; and the pretty *Baronia pinnata*. Messrs Jackson &

Son, Kingston, were second, and had *Pimelea Hendersoni* in beautiful condition, though the plant was not so large as some others exhibited, an excellent *Erica ventricosa coccinea minor*, *Rhynchospermum jasminoides*, *Genetyllis tulipifera*, and other good specimens. Mr Tanton, of Epsom, who was third, had a beautiful *Aphelexis*, *Allamanda grandiflora*, and other well-grown plants. In the corresponding class for amateurs, Mr Peed, gardener to Mrs Treadwell, Lower Norwood, took the first place with a fine collection, the most noticeable plants in which were *Allamanda grandiflora*, *Eriostemon buxifolium*, *Aphelexis macrantha purpurea*, finely coloured, *Erica Cavendishii*, *Ixora coccinea*, and *Franciscea calycina*. The second prize went to Mr Donald, gardener to J. G. Barclay, Esq., Leyton, who had the rose-coloured *Adenandra fragrans*, *Stephanotis floribunda*, *Rhynchospermum jasminoides*, and the showy *Dipladenia amabilis*. Mr Wilkie, gardener, Oak Lodge, Kensington, was third, and sent, among others, his fine *Medinilla magnifica*, *Dracophyllum gracile*, *Franciscea calycina*, and *Erica tricolor impressa*.

In the amateurs' class for six plants, Mr Ward, gardener to F. G. Wilkins, Esq., Leyton, was first, with a very fine *Aphelexis*, *Bougainvillea glabra*, nearly 4 feet in diameter; a large *Erica Cavendishii*; *Dracophyllum gracile*, very fine; *Stephanotis floribunda* and *Clerodendron Balfourii*, both excellent. The second prize went to Mr Carr, gardener to P. L. Hinds, Esq., Byfleet, who had a fine plant of *Phænocoma prolifera Barnesii*, the bright-coloured flowers of which were not so numerous as to give it that effect which it would otherwise have had. In the same collection there were also good examples of *Pimelea spectabilis* and *Acrophyllum venosum*. Mr Kemp, gardener to the Duke of Northumberland, Albury Park, was third, Mr Wilkie fourth, and an extra prize was awarded to Mr Peed. In the open class for collections of the same number of plants, the last-named exhibitor was first, showing a small but finely-bloomed *Allamanda grandiflora*, *Ixora coccinea*, and *Polygala oppositifolia*. The second, third, and fourth prizes went respectively to Mr Wheeler, gardener to J. Phillpot, Esq., Stamford Hill; to Mr A. Wright, gardener to C. H. Roberts, Esq.; and to Mr G. Wheeler, gardener to Sir F. Goldsmid, Bart., Regent's Park. Mr Kemp, who also exhibited in this class, had *Acrophyllum venosum* with spikes $6\frac{1}{2}$ inches long, and much whiter than those of any plant of the same kind shown, and it only wanted to be as large as the others to be at least twice as effective.

Mixed collections of fine-foliaged and flowering stove and greenhouse plants were neither so numerous nor so effective as at Kensington on the previous Wednesday; and as prizes were not offered for Ferns, there were but few of these. Mr Carr, who was first for a collection of twelve, had good but not large examples of *Croton angustifolium* and *variegatum*, a well-coloured plant of *Dracæna ferrea picta*, *Alocasia metallica*, and a prettily-flowered specimen of *Erica ventricosa magnifica*. Mr Foreman, gardener to G. Maule, Esq., Denmark Hill, was second, and sent *Anthurium regale* and *Scherzerianum*, *Alocasia metallica*, with finely-coloured leaves, *Cissus discolor*, and *Mussaenda frondosa*, with its white calycine leaves freely developed. The first prize for six went to Mr Wright, in whose collection were the elegant Fern-like *Cupania filicifolia*, *Gleichenia semivestita*, very beautiful; a fine *Croton variegatum*, and a good *Aphelexis*. Mr Donald was second, Mr Carr third, and Mr Wilkie had an extra prize.

Of Heaths the specimens shown were excellent, especially those of the varieties of *ventricosa* and *tricolor*; also *Eassoniana*, *Alberti*, *perspicua nana*, *elegans*, *candidissima*, *Fairrieana*, *Candolleana*, *florida*, *Massoni major*, and *Juliana*. The prizes in the nurserymen's class were taken by Messrs Jackson, Morse, Williams, and Rhodes; and in the amateurs' class by Messrs Peed, Ward, Kemp, and J.

Wheeler. In the open class they were taken by Messrs Ward, J. Wheeler, Morse, and Peed.

Orchids were not shown in such large numbers as in some previous years, nor have they been so anywhere this season. Mr Williams was the only exhibitor in the nurserymen's class for ten, and took a first prize with nearly the same collection as shown at Kensington. The best collection of eight came from Mr Wilson, gardener to W. Marshall, Esq., Enfield, and included a fine specimen *Cypripedium caudatum* with eight flowers, having petals nearly 2 feet long; a fine variety of *Cattleya Mossiæ*, *Dendrobium Dalhousieanum*, *Vanda tricolor*, *Lælia purpurata*, *Eriopsis rutidobulbon*, with three spikes a foot long; and *Aërides Lobbii*, with two spikes, which will be very fine when fully developed. Mr Young, gardener to W. H. Stone, Esq., M.P., was second; Mr Woodward, third; and Mr Peed, fourth. Mr Woodward had very good examples of *Dendrobium densiflorum*, *Anguloa Clowesii*, and *Lycaste aromatica*. For six, Mr Wilson was again first with *Odontoglossum Alexandria* with four most beautiful large-flowered spikes; *Dendrobium densiflorum album*, *Lælia purpurata*, *Cattleya Mossiæ superba*, *Vanda suavis*, and *Cattleya Warneri*, all in fine condition. Mr Ward came second, Mr Wright third, and extra prizes were given to Messrs Young, Woodward, and Peed.

In pot Roses, Mr Turner was first in both classes, and his collection of smaller ones was the theme of universal admiration. It contained well-bloomed plants of Madame E. Appert, Madame Margottin, Horace Vernet, Miss Ingram, Madame George Paul, Madame Alice Dureau, Sénateur Vaisse, Reine du Midi, Monsieur Woolfield, Madame Furtado, Madame Clémence Joigneaux, Alba Rosea, Monsieur Noman, Souvenir d'un Ami, Victor Verdier, President Willermoz, Charles Lawson, Felix Genero, Mademoiselle Thérèse Levet, and Enfant d'Ameugny. Messrs Paul & Son were second with large pots, but did not exhibit in the other class. In cut Roses, Mr Mitchell was first with fifty Roses, and Mr Turner first for twenty-four. In the box of the former were some grand blooms of Baroness Rothschild, Clotilde Rolland, Maréchal Niel, Prince de Portia, Mademoiselle Thérèse Levet, and Nardy frères (new). Messrs Paul & Son were second, and in their collection were some good blooms of Duke of Edinburgh, Exposition de Brie, Maréchal Niel, Duchesse de Caylus, Alfred Colomb, &c.; while Mr Turner's box of twenty-four contained admirable examples of the following:—Leopold Hausburg, *Lælia*, Souvenir de Charles Montault, Abel Grand, Paul Verdier, Duchesse de Caylus, Souvenir d'un Ami, Madame Boll, Charles Verdier, Oliver Delhomme, Céline Forestier, Mademoiselle Annie Wood, Gloire de Dijon, Miss Ingram, Antoine Ducher, Mademoiselle Marguerite Dombrain, Madame Victor Verdier, Niphotos, Rev. H. H. Dombrain, La France, Alfred Colomb, Madame Margottin, Maréchal Vaillant.

Pelargoniums and Azaleas were much the same as at previous shows. On either side of the nave, Messrs Downie, Laird, & Laing, and Jas. Carter & Co., had arranged choice and valuable groups of plants that did each of these firms the greatest credit.

GREAT ROSE-SHOWS, CRYSTAL PALACE, June 19th; AND ROYAL HORTICULTURAL SOCIETY, June 29th.—Two fine shows, the latter the best—plenty of flowers, and these generally good; the season duly regarded. Rose exhibitions are always great successes if the weather be at all favourable; people will visit a Rose show who don't care to go to any other. *Floreat Regina Florum!* This is how the nurserymen's prizes were awarded at the Crystal Palace with single trusses of seventy-two varieties:—Mr Turner took the first place with excellent examples of Leopold Haus-

burg, Charles Rouillard, Princess Mary of Cambridge, Marie Baumann, Victor Verdier, Madlle. Thérèse Levet, Dr Andry, Marguerite Dombain, Gloire de Dijon, Général Jacqueminot, Madame Boll, Madame Vidot, Sénateur Vaisse, Monsieur Boncenne, La France, Jean Goujon, Madame Willermoz, Triomphe de Caen, Maurice Bernardin, Horace Vernet, Abel Grand, Felix Genero, quite a rosy-violet globe; Duc de Magenta, yellow; Miss Ingram, Jules Margottin, Prince Camille de Rohan, very fine; Maréchal Niel, splendid; Madame Furtado, Madame Victor Verdier, Camille Bernardin, Rubens, Gloire de Ducher, very large, but coarse-looking; John Hopper, Exposition de Brie, Lord Raglan, splendid; General Castellane, and others. Messrs Paul & Son, who were second, had also a fine collection, in which the following were noticeable—viz., Souvenir de Monsieur Boll, Madame Furtado, Maurice Bernardin, Victor Verdier, Madame Charles Wood, Antoine Ducher, John Hopper, Duke of Edinburgh, a most splendid scarlet Rose, which was seen in great perfection in other collections, and attracted much attention; François Treyve, Abel Grand, Madame Rivers, Joseph Fiala, Xavier Olibo, and others already named. Mr Mitchell of Piltown, was third; Mr Keynes of Salisbury, fourth; and an extra prize was awarded to Messrs Francis of Hertford.

The next class was for forty-eights, three trusses, and in it Messrs Paul & Son were first with a rich display, conspicuous in which were trusses of Duke of Edinburgh, François Lacharme, Charles Rouillard, Pierre Notting, Exposition de Brie, Mdle. Thérèse Levet, Vicomtesse de Vezins, Dr Andry, Madame Julie Daran, Madame Furtado, splendid; Prince Camille de Rohan, Madame Clemence Joigneaux, Michel Bonnet, very bright; Maurice Bernardin, Victor Verdier, Madame Rivers, Olivier Delhomme, Antoine Ducher, Achille Gonod. Mr Turner came in second with Dr Andry, Charles Lefebvre, Madame Charles Crapelet, Camille Bernardin, Marie Baumann, Jules Margottin, Louise de Savoie, Alfred Colomb, Paul Verdier, Thorin, Prince Camille de Rohan, Sénateur Visse, Lord Raglan, fine in colour; Pierre Notting, La France, Exposition de Brie, John Hopper, and Princess Mary of Cambridge. Mr Keynes, who was third, showed good trusses of Marguerite de St Amand, and others; while Mr Mitchell, who was fourth, had splendid trusses of Maréchal Niel, which was everywhere good, and Lamarque.

The next class was for twenty-four varieties, three trusses. Here Messrs Paul & Son took the lead with excellent stands, containing John Hopper, Charles Rouillard, Dr Andry, Madame Rivers, Madame Willermoz, Madame Clemence Joigneaux, Duke of Edinburgh, splendid; Prince Camille de Rohan, Madame H. Jacquin, Madame Charles Wood, Mdle. Thérèse Levet, Charles Lefebvre, Marguerite de St Amand, Victor Verdier, splendid; La France, and Devonensis. Mr Turner was second with Miss Ingram, Marie Baumann, Louise de Savoie, very fine; Madlle. Thérèse Appert, Princess Mary of Cambridge, Souvenir de Comte Cavour, Gloire de Dijon, Victor Verdier, Charles Lefebvre, and several of those already named, in excellent condition. Mr Keynes, who was third, had also fine trusses. At the Royal Horticultural Society's Show the Trade awards were as follows:—

In the class for seventy-two single trusses, Messrs Paul & Son took the first prize, with a splendid collection, in which the following were especially fine:—Léopold Hausburg, Marie Baumann, Madame Fillion, Antoine Ducher, Le Rhone, Maréchal Vaillant, Prince de Porcia, Pierre Notting, Sénateur Vaisse, Jean Cherpin, Beauty of Waltham, Marie Rady, Centifolia rosea, Xavier Olibo, Duchesse de Caylus, Duke of Edinburgh, Maréchal Niel, Monsieur Noman, Madame Furtado, and La Fontaine. Mr Turner came second, with, amongst others, good examples of Triomphe de Caen, Maurice Bernardin, Dr Andry, Prince Camille de Rohan, Marie Baumann Narcisse, Antoine Ducher, Général Jacqueminot, Souvenir de Comte

Cavour, Napoléon III., Madame Fillion, Horace Vernet, and Madame Chas. Wood. Mr Keynes, who was third, had in his collection fine specimens of Gloire de Vitry, Lord Macaulay, Fisher Holmes, Comtesse de Chabillant, Général Jacqueminot, Marie Baumann, Duke of Wellington, Madame Fillion, &c. Messrs Francis & Co., Hertford, were fourth.

In the class for three trusses of forty-eight varieties, Messrs Paul & Son again came first with good illustrations of well-known kinds, Mr Keynes was second, Mr Turner third, and Messrs E. P. Francis & Co. were fourth.

In the class for twenty-four Hybrid Perpetuals, three trusses of each, the first prize was taken by Messrs Paul & Son, who furnished fine trusses of Marguerite de St Amand, Beauty of Waltham, Jean Cherpin, Baroness Rothschild, Monsieur Noman, Sénateur Vaisse, Marie Baumann, Madame Rivers, Dr Andry, La France, Madame Thérèse, Levet, Marguerite Dombrain, Lord Clyde, Antoine Ducher, &c. Mr Turner came second with good blooms of Exposition de Brie, Marie Baumann, President Willermoz, Impératrice Eugénie, Paul Verdier, Duke of Wellington, Victor Verdier, Antoine Ducher, Horace Vernet, Monsieur Noman, Madame C. Joigneaux, John Hopper, and Charles Lefebvre, in this collection; Mr Keynes was third, and Mr J. Cranston, Hereford, was fourth; and to Mr Fraser, Lea Bridge, an extra prize was awarded. Mr H. Coppin, Shirley, Croydon, also exhibited in this class.

In the class for single trusses of twenty-four varieties the first prize was awarded to Mr B. R. Cant, Colchester, with, amongst others, admirable blooms of La Ville de St Denis, Marie Baumann, La Duchesse de Morny, Céline Forestier, Madame Bravy, Maréchal Vaillant, Maréchal Niel, Xavier Olibo, Baronne de Rothschild, Madame Willermoz, Le Rhone, Duke of Wellington, Duchesse de Caylus, Madame Vidot. Mr Keynes was second, Mr Turner stood third, and Mr Cranston, King's Acre, Hereford, was fourth. Mr H. Coppin, and Mr J. Mann, Brentwood, also showed fair collections.

In so far as the amateur growers were concerned, they made the best display at the Royal Horticultural Gardens. At the Crystal Palace the flowers were wanting in that fine substance and quality they appeared to have reached at South Kensington. Alas! at neither place was there seen this season the patient face of that prince of amateur Rose-cultivators, Mr J. T. Hedge, Reed Hall, Colchester. It is said he is so severely ill that grave doubts are expressed if he will ever be restored to health. It may be briefly stated that the varieties exhibited by amateur growers were only repetitions of those flowers that had appeared in the nurserymen's classes.

The classes for Tea, Noisette, and Moss Roses brought those flowers usually seen in them. Of the former, the best were Maréchal Niel, Devoniensis, Gloire de Dijon, Céline Forestier, Safranot, Madame Falcot, Triomphe de Rennes, Cloth-of-Gold, and Rubens.

Of new Roses, those most to be commended were Baronne Haussmann, Baroness Rothschild, Coquette des Alpes, Duke of Edinburgh, Elie Morel, La France, Madame Alice Dureau, Madame Marie Cirodde, Madame Noman, Pitord, and Reine du Midi.



Notices to Correspondents.

T. C. P. G.—*Echeveria metallica* can be propagated by taking off the lateral growths and striking them in small pots in sand. They may be placed on the shelf of a dry stove, and sparingly supplied with water. By far the easiest and best way to increase your stock is to seed one of your plants, and sow the seed next spring. We saw thousands of this plant in a London nursery recently, all raised from seed. The plants grow more vigorously, and are more ornamental and shapely, than plants raised from cuttings. A plant kept in a pot in a greenhouse will seed more readily than one planted out in the open ground.

G. M.—The Golden Champion Grape Vine grows as freely on its own roots as any Vine we know. A gentleman who called on us yesterday said he had just come from Drumlanrig, where he saw a whole house of it that had been planted this year, and that the Vines had made growths of 30 feet in length, and that he had never seen such foliage before. We know many other places where it is growing with equal vigour.

T. M.—Dissolve at the rate of one ounce of soft soap and one gill of tobacco water to the gallon of pure water, and syringe your Rose-trees with it. Apply it in the evening, and at 6 o'clock next morning wash them with pure water. Repeat this several nights in succession.

A. S.—The cold nights and want of rain combined have been the cause of the running to seed of your Carrots, Turnips, and Beet, and probably you have sown rather early.

D. W.—We find Shanks's Mowing Machine stands hard work as well as any we know.

J. D.—The pressure on our space will prevent our being able to publish your papers, interesting as they are.



THE GARDENER.

SEPTEMBER 1869.



THE ROSE.

(Continued from page 345.)

CHAPTER XIV.—HOW TO SHOW IT.



WHEN I first exhibited Roses, the boxes selected for the Queen of Flowers were not what royal boxes ought to be. They were ordinary and heterogeneous ; they were high and low, wide and narrow, painted and plain. Disorder prevailed, as at the Floralia of old ; and Bacchus again appeared upon the scene in the cases which had contained his wines, and which, reduced in altitude and filled with dingy moss, now held the glowing Roses. These were kept alive, *auspice Æsculapio*, in old physic-bottles filled with water, and plunged to the neck in the moss aforesaid ; but sometimes the succulent Potato was used to preserve vitality, and I remember well a large hamper, with its lid gracefully recumbent, in which six small Roses uprose from huge specimens of “Farmers’ Profit”—the *Pommes de terre* being inserted, but not concealed, in a stratum of ancient hay. Sometimes the flowers were crowded together, sometimes they were lonely, neighbourless, like the snipes, in “wisps,” and solitary ; sometimes they appeared without foliage (at one of our provincial shows it was strictly prohibited, and I asked the committee what they meant by coming on the ground with whiskers) ; and sometimes they peeped out of leafy bowers—“plenty of covert, but very little game,” as a witty Lincolnshire lord remarked to the clergyman, who asked him, one Christmas morning, what he thought of the decorations of a church in which the evergreens were many and the worshippers few.

At our first National Rose-Show we commenced a reform of these incongruities, and soon afterward disannulled them by an act of uniformity as to size and shape. The amateur must therefore order his boxes, which any carpenter can make for him from inch deal, to be of the following dimensions:—

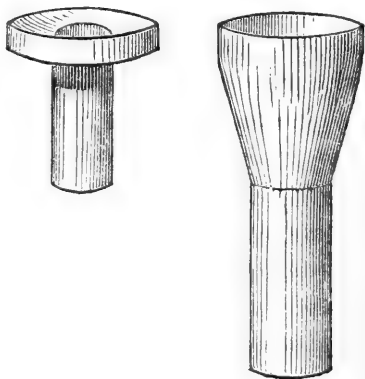
Length.		Breadth.		Height.	
For 24 Roses, 4 feet.		1 foot 6 inches.		Back of box 6 inches, front 4.	
„ 18	„ 3	„	„	„	„
„ 12	„ 2 feet 2 in.	„	„	„	„
„ 6	„ 1 foot 6 in.	„	„	„	„

The covers, being $7\frac{1}{2}$ inches in depth at the back, and 5 inches in front, 4 feet 1 inch in length, 1 foot 7 inches in breadth, and having a narrow beading within the four sides, half an inch from the bottom of the lid, overlap the boxes, leaving ample room for the Roses, and are secured for travelling by stout leather straps. Within the boxes some exhibitors have holes pierced at equal distances on a uniform surface of wood; but as Roses differ in size, it is more convenient to have the facility of placing them where we please, and for this purpose it is desirable to have strong laths (3-4ths of an inch in depth, and 1 inch 7-8ths in width) extending the length of the box. These laths should be six in number, and should be nailed on two strong pieces of wood, crossing the box one at each end, 2 inches below the surface. The upper and lower laths should be fixed 1-8th of an inch within the box, and the four remaining so arranged that there will be five interstices $1\frac{1}{4}$ inch in width—three for the Roses, and two merely to reduce the weight. There will be a space of $1\frac{1}{4}$ inch between the laths and the upper edge of the box, to be filled as follows: Cover the laths with sheets of brown paper, two deep, and cut to fit the box, and upon these place the best Moss you can obtain. I get mine from trunks of trees in a neighbouring wood; have it carefully picked over and well watered the day before a show; and then, using the coarser portion for a substratum, make my upper surface as clean and green and level as I can.

It would, I think, repay the Rosarian to grow Moss specially for this purpose, such as would thrive—*S. denticulata*, for example—in rough boxes and waste places, under stages, or in vineries. Some years ago I placed a lining of zinc, 2 inches deep, at the top of one of my Rose-boxes, filled it with earth, and soon obtained from it a charming surface of *S. apoda*. The effect of twelve beautiful Roses resting upon this bright-green moss was lovely; but oh the weight when we bore them to the show! no mother in all the world would care to carry such a bulky babe.

A wee story about Moss, and we leave it. I remember an exhibitor, of whom it was said that he was never known to pay a compliment, or to praise anything which did not belong to himself, except upon one occasion. Having won the first prize for Roses, he went in the joy of his heart to his chief rival, and, surveying his collection, deliberately and frankly said, "Well, John, I must acknowledge you certainly beat us—in Moss." As well might some victorious jockey compliment the rider of a distanced horse upon the plaiting of that horse's mane. It was a panygeric as glorious as that which Artemus Ward paid to his company, composed exclusively of commanders-in-chief, "What we partiely excel in is resting muskits—we can rest muskits with anybody."

The Roses are placed in tubes of zinc $4\frac{1}{2}$ inches in length, 2 inches wide at the top, gradually tapering until they become 1 inch in width at the centre; the tops being moveable, as shown herewith. This top is taken off, and the stalk of the flower being brought through until the Rose is held securely, it is replaced upon the tubes, previously filled with pure rain-water. These tubes not only facilitate the arrangement of the flower, but they retain the water when rough railway porters forget their gradients. They may be had from the brazier and tinman every where, and they cost $1\frac{1}{2}$ d. apiece.

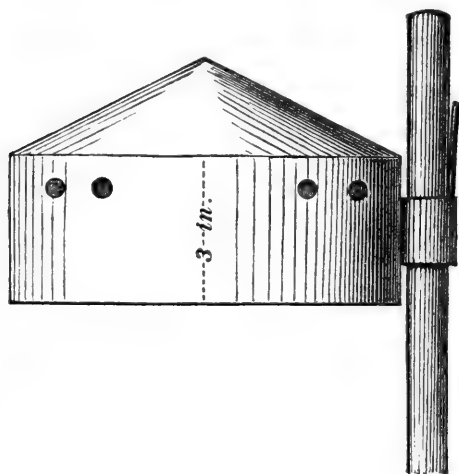


The carelessness of porters reminds me to add, that exhibitors who cannot accompany their Roses—a terrible separation to the true lover, and one which I have never known—will do well to have painted in white letters upon the dark-green lids of their boxes, "Flowers in water—keep level."

The amateur must now have the cards in readiness, on which he has written with his best pen the names of his show-Roses. These are cut from the ordinary cardboard, and must be of the regulation size—3 inches in length by 1 in width. They should be kept in a box, divided into compartments and lettered, so that they may be quickly found when wanted. They are placed sometimes on the moss in front of the Rose, but they have a more neat and uniform appearance if inserted on sticks about 5 inches long (I use osier-twigs painted green), cleft at the top to receive them, and pointed at the bottom to penetrate the Moss more easily.

The young knight will not be armed *cap-à-pie* until he has supplied himself with a couple of helmets. If the weather is showery, or the

sun scorches, just before a show, many Roses may be advantageously shaded by having a zinc cap placed over them 8 inches in diameter, 5 inches in depth, ventilated, and having a socket attached, which may be moved up and down a stake fixed by the Rose-tree until the cap is secured in its position by a wooden wedge inserted between socket and stake, as under. Roses of a more delicate complexion than



others—such as Mesdames Vidot and Rivers, the two Louises Magnan and Peyronney, Miss Ingram and Monsieur Noman—and some whose vivid colouring is quickly tarnished by fiery suns—such as the brilliant Monsieur Boncenne—may be thus preserved for exhibition. Fresh Cabbage-leaves, renewed from time to time, may be advantageously placed on the caps, which, I may add, have a more pleasing appearance in the rosarium when painted a dark-green colour.

Helmet No. 2 resembles No. 1, except that the top is made of glass and is flat. This is used to accelerate the opening of Roses, and sometimes with success; but generally I have found that nature will not be hurried, and the Rose has been more refractory than the heat.

In using these caps—and their use, be it remembered, is exceptional—the amateur must be on his guard against placing them too near the Rose, lest, when moved by the wind, the petals should be injured by trituration. And not only in this instance, but in all, he must so watch his trees as to prevent all risk of that contact and chafing which quickly ruins the Rose. Watching the flower as it sways to and fro in the summer breeze, he must remove all leaves and shoots which, touching it, would mar its beauty.

Watchful ever, our young knight must keep his stricter vigil upon the battle's eve. He must know that all is in readiness, the extent of his resources, and how he is to apply them. The day before a show, I have not only the names of my best Roses noted in my pocket-book, but, dividing a sheet of paper into 48, 36, 24, 12, or 6 spaces, I place each Rose in the position which it will probably occupy on the morrow, and set my forces in battle array. Here is an example, copied *literatim* :—

12 ROSES.

Lefebvre.	Niel.	Duc de Rohan.	Vidot.
Furtado.	Beauman.	Devoniensis.	Colomb.
P. Notting.	M. Bravy.	Ex. de Brie.	De Rennes.

Your beautiful thoroughbreds may not all come to the post, they may not run in the order in which you have placed them—that is, some of your Roses may be too much expanded when you come to cut them, or may not be in size or in colour exactly suitable for the position assigned to them; but you will find, notwithstanding, very great assistance from such a plan as that proposed to you; and when you have gained by observation a knowledge of the development and duration of your Roses, you will meet with few disappointments in its realisation.

On the eve of the show you must have all your boxes surfaced with Moss, and sprinkled, set out upon trestles, 3 feet from the ground, in some sheltered corner or garden-shed; your zinc tubes, in rows upon their miniature bottle-rack, cheaply made, and having a strong resemblance to the stands on which Boots deposes our fat portmanteau, heaving a thankful sigh; and upon a small table your box, containing plans of arrangement, cards with names of Roses written upon them, sticks to hold them, a pair of sharp pruning-scissors with which to cut your flowers, a pair of small finely-pointed ditto, with which you may sometimes remove the decayed edge from a petal, and a piece of narrow ivory rounded at the end, such as ladies use for a knitting-mesh, and which, very carefully and delicately handled, may help you now and then to assist the opening Rose, or to reduce irregularities of growth to a more natural, and therefore graceful, combination; add a small hamper of additional Moss, and the dressing-room is ready for the royal toilet.

When should we cut our Roses? The nurseryman who exhibits 144 Roses in one collection—that is, 3 specimens of 48 varieties—and sometimes simultaneously a collection of 72 distinct blooms, conveying them great distances, is obliged to cut on the day preceding the shows, and having acres of young trees to select from, can generally find Roses of such calibre as will insure to him a continuance of perfect beauty for the next four-and-twenty hours; but I strongly advise the amateur, who has no such wealth of material, and must make the most of his limited means, to cut his Roses, whenever he has the option, upon the

morning of the show. If the weather is broken, and clouds without and barometer within warn you of impending rain, then gather ye Roses while ye may, in the afternoon and the evening before the show; but if it is

“In the prime of summer-time,
An evening calm and cool,”

let your Roses rest after the heat of the day, and cut them on the morrow, when they awake with the sun, refreshed with gracious dews.

Wherefore, early to your bed, my amateur, your bed of Roses and of Thorns; for as surely as the schoolboy who, having received a cake from home, takes with him a last slice to his cubicle, awakes in feverish repletion, turning painfully upon the crusty crumbs, so shall this night of yours be fraught with pleasure and with pain. Now shall you taste daintily the candied peels, and now toss fretfully on piercing grits. Now you shall sleep, and all shall be serene, blissful. You are dreaming, so sweetly dreaming, the happy hours away. The great day has come,

“A happier smile illumines each brow,
With quicker spread each heart uncloses;
And all is happiness, for now
The valley holds its feast of Roses.”

Your own are magnificent, larger than those which bloom in Manchester chintz above your slumbering brow, 9 inches in diameter. You reach the show; you win every prize, laurels enough to make triumphal arches along all your homeward way. Suddenly a change, a horrible change, comes o’er the spirit of your dream. How the van, in which you are travelling with your Roses, jumps and jolts! how dark the night, and how the thunder rolls! Ah, *tout est perdu!* Crash fall the horses, or rather the nightmares, down a steep incline, and you find yourself standing, aghast and hopeless, knee-deep in *pot-pourri!*

Awaking, for the sixteenth time, with a terrible impression that you have overslept yourself, and that the time for cutting Roses is past, you are comforted in hearing the clock strike two. Another restless hour, and you are up in the grey dawn. At 3.30 you should be among the Roses, never so lovely as now, lifting their heads for the first kisses of the sun, and, alas! for decapitation. See, your gardener is there, keen as yourself. He fills a score of the tubes with pure sweet rain-water; he places them in one of your spare boxes, and is ready to follow, when, having glanced at your programmes, and armed yourself with the trenchant blades, you lead the way to glory and the Roses.

Cut first of all your grandest blooms, because no Mede nor Persian

ever made law more unalterable than this, *The largest Roses must be placed at the back, the smallest in the front, and the intermediate in the middle of your boxes.* They become by this arrangement so gradually beautifully less that the disparity of size is imperceptible. Transgress this rule, and the result will be disastrous, ludicrous, as when some huge London carriage-horse is put in harness with the paternal cob, or as when some small but ambitious dancer runs round and round the tallest girl at the ball in the gyrations of the mazy waltz. So Triomphe de Rennes in your front row is a beautiful yellow Rose. Placed in juxtaposition to Maréchal Niel, its name becomes a cruel joke ; your little gem is lost beside the Koh-i-noor, and your bright star pales before the rising sun its ineffectual fire.

You will have another advantage in commencing with your finest flowers, because of these you will have (or ought to have) the larger stock, and will thus be able to lay at the same time and in the same order the foundation of your different collections, using the same corner-stone in each (begin always with some glorious Rose, which must attract the judicial eye, and make an impression upon the judicial heart), and assimilating the arrangement, as long as you possess the material. Much labour, head work and leg work, is saved by this plan of simultaneous structure.

The amateur must not exhibit these larger Roses when they have lost their freshness of colour, or when the petals, opening at the centre, reveal the yellow "eye." He must not place a Rose in his box because it *has been* superlatively beautiful. In the eyes of her husband, the wife a matron should be lovely as the wife a bride ; but the world never saw her in her Honiton veil, and respectfully votes her a trifle *passée*. At the same time, let not the exhibitor be over-timid, nor discard a Rose which has reached the summit of perfection, and may descend he knows not when, but let him bravely and hopefully set it among its peers. If it suffers from the journey, it must be replaced, of course, from the box of spare blooms, which every exhibitor takes with him ; but if it holds its own, let it remain, though you are still anxious concerning it. If it is really a Rose of superior merit, nothing can now happen which will prevent a righteous Rosarian, such as every judge ought to be, from recognising its claims. I once saw, and the recollection makes me shudder still, a senseless censor thrust the end of a huge finger into the heart of a magnificent Duc de Rohan, in his anxiety to assure us, his coadjutors, that the Rose was too fully blown. Oh how I wished that the Duc, to whom we voted by a majority the highest marks, had been armed for the moment with a ferret's teeth !

The arrangement of Roses, with regard to their colour, has not

been studied as it deserves to be. With some few exceptions, the nurserymen are not successful in this matter; but it is very difficult for them to find the time, granting the taste to be there, for a minute assortment of the large collections which they are called upon to show; and knowing that the awards will be made upon the merits and demerits of the individual flowers, they are not solicitous about minor details. The amateur, with more leisure than the man of business for the study of the beautiful, and for the most effective display of his fewer flowers, ought to excel, but, as a rule, does not. His Roses are very rarely made the most of in this respect, but are frequently marred and spoiled, the colours clashing and contending with each other, instead of combining against their common adversary. It is told of a highly sensitive dame, whose silly pride was in dress, that she went into hysterics before a large party when her great rival in millinery came and sat upon the ottoman beside her, in a grand garment of the same colour as her own, but of a much more brilliant and effective dye; and I have seen many a Rose which would weep, if it could, aromatic rose-water, subdued by a like despair. Whereas every flower should be so placed as to enhance its neighbours' charms—the fair blonde with her golden locks smiling upon the brunette with her raven hair, each made by the contrast lovelier. Once upon a time six pretty sisters lived at home together always. In looks, in figure, in voice, gait, and apparel, they exactly resembled each other. Young gentlemen, seeing them apart, fell madly in love, as young gentlemen ought to do; but on going to the house, and being introduced to the family, they were bewildered by the exact similitude, didn't know which they had come to see, couldn't think of proposing at random, made blunders, apologies, retreats. It seemed as though all these charming flowers would be left to "wither on the virgin Thorn," when one of them was permitted to leave her home upon a visit to a distant friend. She returned in six weeks, *bien fiancée*, and six months after was a bride. The rest followed her example. So it is that six scarlet Roses or six pink Roses in close proximity perplex the spectator, and depreciate each other by their monotonous identity; isolated or contrasted, we admire them heartily.

Nor let the exhibitor, amateur or professional, suppose that these matters are of no importance. It is true that priority is won by the superior merits of the Roses, carefully examined and compared; but in cases where these merits are equal, then the best arrangement as to form and colour will certainly influence, and probably determine, the verdict. I can recall several instances in which, *cæteris paribus*, tasteful arrangement has given the victory. The material for operation has been equally good; the *modus operandi* has been the point of excel-

lence—the artistic effort of the more accomplished horseman has saved him from a dead heat.

Time was when the exhibitor had good excuse for the introduction of flowers faulty in shape and too much alike in colour. Time was (and I recall it happily, for we vexed not ourselves about that which might be, but delighted our hearts in that which we had) when our dark Roses, such as Boula de Nanteuil, D'Aguesseau, Ohl, and Shakespeare—our pink Roses, such as Comtesse Molé and Las Casas—our white Roses, such as Madame Hardy—were painfully wide awake when they reached the show, and our collection had “eyes” like Argus. We are dismayed now if a Cyclops shows himself, even in our “48.” A marvellous development and progress has been made both in the form and complexion of the Rose, and every season brings us new treasures. See what we have gained in the last few years—to the darker varieties we have added such Roses as Alfred Colomb, Charles Lefebvre, Duchesse de Caylus, Duc de Rohan, Exposition de Brie, Leopold I., Marie Beauman; and to the lighter, Madame Thérèse Levet, Marguerite de St Armand, La Baronne de Rothschild, La France, Miss Ingram, Reine Blanche, and many others. Time was when the only yellow Roses exhibited (Cloth-of-Gold was in existence, but lived in strict seclusion) were Solfaterre, with very little yellow and still less shape; Persian Yellow, in hue golden, glorious, but in size a big Buttercup; and sometimes a bud of Smith's Yellow, which no power on earth could induce to open, a pretty button-hole flower. Now we have Celine Forestier, Triomphe de Rennes, and magnificent Maréchal Niel! Fancy Smith's Yellow in a modern collection—Tom Thumb on parade with the Guards!

The names which I have just written remind me how much the Tea and Noisette Roses diversify and beautify our show collections. That the former are delicate and difficult to produce when we most require them, is evident from their sparse appearance in public; but it is just one of those superable difficulties which separate the sincere from the spurious Rose-grower, and which only the former overcomes. The conservatory and the orchard-house (there ought to be, wherever there is taste and opulence, a Rose-house) are undoubtedly the best homes for the Tea Rose; but in this more genial temperature it blooms long before the showman's opening day; and I have seen houses containing many hundred plants which have not contributed to the exhibitor a single flower. I have tried with these Roses many experiments, in pots and out, *al fresco*, under glass, under canvas (moveable), on their own roots, on the Manetti, and on the Brier. The latter has been in this, as in all other cases, my best ally and friend. Timid brethren forewarned me that the winter would kill every bud, and

timid brethren tittered merrily when a frost of abnormal vigour destroyed three-fourths of my first adventurers. I persevered, of course. If a fourth withstood an unusual severity, I might rely in ordinary seasons upon complete success. Defeat, moreover, and the derision of my friends, evoked a noble rage, a more determined energy. In my youth I heard a professor remark at Oxford (he styled himself professor and teacher of the noble art of self-defence, but the condition of his nose was more suggestive to me of one who was *taking* lessons) that "he never could fight until he'd napped a clinker." Then

"His grief was but his grandeur in disguise,
And discontent his immortality."

So felt I, and so fought and conquered; and I advise the amateur with a good courage to bud those Tea Roses which are mentioned on the list for exhibition. They survive nine winters out of ten, here in the midland counties, and although they will not bloom early in their first season, they will do so in the autumn, and in the summer following will be in time for the shows. Let some of them remain where they are, some be removed to warm corners and to positions least exposed to rough weather, and *let some*, where there is accommodation, *be placed against a wall*. Upon your house, between fruit-trees, wherever you have a vacant mural space, there put in a Tea Rose. The most reliable varieties among the hardier Teas are Adam, Comte de Paris, Devoniensis, Climbing Devoniensis, Gloire de Dijon, Louise de Savoie, Madame Bravy, Madame Rachel, Madame Willermorz, Rubens, and Souvenir d'un Ami. Reine du Portugal, a beautiful yellow Rose, is promising, but "not proven." These Tea Rose-trees should not be pruned before April, and then sparingly.

Set up your Roses boldly, with the tubes well above the Moss, and keep a uniform height. Most of the show varieties will hold themselves erect and upright, but some are of drooping habit, and their spinal weakness requires the support either of a thin slip of wood or twig secured with thread to the stalk, or of moss pressed firmly round them after they have been placed in the tube. Turn your Rose slowly round before you finally fix it, so that you may present it in its most attractive phase to the censor. I have seen Roses looking anywhere but at the judge, as though they had no hopes of mercy.

Do not be induced to admit a Rose only because it is new, or because it has some one point of excellence, being defective in others—*e.g.*, a Rose ill-formed because it is brilliant in colour, or a dull coarse bloom on account of its size. The judge will be down upon that invalid swiftly and surely, as a fox upon a sick partridge.

Nor place two Roses together which are both deficient in foliage.

Give to each of them the rather a neighbour like Madame Boll, whose abundant and flowing curls may partially conceal their baldness. But add no leaves, though the temptation be great, because that same judge is quick as a barber to distinguish between natural and artificial hair, and there may be "wigs on the green"—*i.e.*, you may find your surreptitious foliage lying upon the Moss, and a card, with "Disqualified" written upon it, staring you in the face.

Step back from time to time, as the artist from his easel, to criticise your picture, and try to improve it. And when you have finished it, invite others to give their opinions freely. Try to ascertain which Roses they like the least, rather than to feast your ears with their exclamations of praise. You will obtain help sometimes where you least expect it, and your attention will be called to defects which you had overlooked in a kind of parental fondness. Spectators, unprejudiced and not akin, can readily point out infirmities in the families of other folks. They do not pronounce, as you do, the red hair of your dear little Augustus a soft chestnut or a rich auburn; they have been known, on the contrary, to murmur "Carrots."

Have the sticks which hold the cards which tell the name of your Roses in their places before you put on the lids. If you are showing in the larger classes, it is wise to make this arrangement when you insert the flowers; otherwise, forgetting names, you may run a risk of including duplicates. Moreover, you will find the process of naming your Roses after your arrival at the show a tedious occupation of time which might be much more advantageously occupied.

Have your lids on before the sun is high, and be on the show-ground as early as you can. You will thus have the advantage of selecting a good place for your boxes, not exposed to draught or to glare; of replacing from your spare blooms those Roses which have suffered from the voyage; of setting each flower and each card in its position; of filling up the tubes with fresh water; and of making the best of your Roses generally, leisurely, and at your ease.

This done, you may put back your lids, just raising them at the front a couple of inches with wooden props; and then you may survey (as I propose to do in my final chapter) the exhibitors, the judges, and the Rose-show itself.

S. REYNOLDS HOLE.



THE CULTIVATION OF HARDY FRUITS.

THE APPLE.

(Continued from page 357.)

THERE is a parasitic Lichen which often proves very injurious to fruit-trees in old orchards. It is generally of a lightish-grey colour, and when fully established upon the tree, gives it rather a grand and imposing appearance, especially in winter, when the foliage has departed from the branches. I know of no writer who describes its general appearance so graphically, yet so truly, as Longfellow, in the introduction to his beautiful poem of "Evangeline," when, speaking of the primeval forests of Acadie, now Nova Scotia, he says—

"This is forest primeval. The murmuring pines and the hemlocks,
Bearded with moss, and in garments green, indistinct in the twilight,
Stand like Druids of old, with voices sad and prophetic,
Stand like harpers hoar, with beard that rests on their bosoms."

It generally makes its appearance upon the trunk of the tree, from whence it gradually spreads itself until every branch thereon becomes hoary and grey by it, unless means be taken to destroy it. It will also be observed that the portion of the tree which is most exposed to the storm will be the first to suffer thereby; and even although the whole tree have less or more of it, the side to the storm will most abound. This Lichen belongs to one of the five classes into which they have been divided; viz., the Homothalami, which means that the apothecia or receptacle is altogether formed of, and is the same colour as, the thallus or frond. This class is subdivided into many varieties, but the one to which I refer is an Usneas, but what one I have some difficulty in determining.

The Lichen belongs to the lowest and most simple form of vegetation, the Fungi tribe alone excepted. Some writers appear to think that this parasite does little or no injury to the tree upon which it grows. Of this, however, I am very sceptical; at all events, it is not to be found upon a young healthy tree, so that if it really does not do harm, it certainly is an indication of want of health in the tree. "Lichens," one writer tells us, "exist exclusively on atmospheric supplies, requiring only air, sunlight, and some degree of moisture for their support." This no doubt is certainly true, but the atmosphere in a season of protracted drought certainly cannot supply that "degree of moisture necessary for their support" without the aid of the tree. Let the season of drought be ever so protracted, it will be noticed upon the raising of a portion of this parasite from the branch of the tree that a certain amount of moisture lies underneath. Let us therefore take into consideration the dryness of the atmosphere, the burning rays of the sun, and the thinness and the permeability of the Lichen, and what other

conclusion can we arrive at regarding the moisture to be found beneath it, than that it has been derived from the branch upon which it lodges? It matters not how much horticulturists be divided in opinion regarding its effects upon fruit-trees, all are at one that it should not be there. It consists of a dry scaly crust having neither roots, stems, nor branches, yet nevertheless attaches itself with great pertinacity to the seat of its existence. It extends itself over the branch by a multiplication of its thalli, which are of a curled appearance, resembling leaves, and performing the same functions. Being a cryptogamous plant, it bears no flowers, but around the edges of the thalus it abounds in spore-cases, which are either growing from or imbedded in its surface. Although in some cases the Lichen does not spread very rapidly, yet in others it does so with amazing rapidity. This altogether depends upon the state of health enjoyed by the tree. If the tree should be in a very delicate state of health, the spread will be all the more rapid, as these spores when ripe get shifted by the wind from the parent plant to other portions of the tree, there in due course of time to become independent plants. Laying aside altogether the fact whether or not the presence of this Lichen is injurious to the tree by draining its life-blood out to support the parasite, there is the undeniable fact that its presence prevents to a greater or less extent the free admission of light and air, as well as that due amount of respiration which is so necessary for the health and wellbeing of the tree. It is a well-ascertained fact, that wherever a tree is attacked its usual vigour is soon diminished, the growths become more weakly year by year, and in the end the growth comes almost to a stand. Not only is this the fact, but as a natural consequence the fruit becomes less in quantity, smaller in size, often deformed in shape, and always of an inferior flavour. It is therefore the interest of the cultivator to ascertain the cause of its presence, so as to be able in his future management to obviate further injury from it, and endeavour as far as possible to find out a remedy for those already suffering.

I have failed to find that any of our leading horticultural writers have given any attention to this enemy of fruit cultivators. Many and various are the private reasons I have heard assigned for its presence, many of them very plausible, some of them very absurd. The conclusion which, from observation, we have arrived at concerning it is, that trees under good management and in a healthy state always escape; whereas trees, especially old trees in bad health, are always attacked. Now what has been said in former papers regarding the keeping of a tree in health, must at once force upon the reader the reasons which we assign for its presence. A cold and wet soil or subsoil, into which the roots have penetrated, and which provides food wholly un-

suited for the tree, is the root and origin of this evil as well as canker. And did the fact never strike the cultivator, that where the one was present the other is seldom if ever absent? The fact is, in all our experience, and that of several other gardeners to whom we have spoken upon the subject, the one is the handmaid of the other. If this be the fact, and there is little doubt of it, what will be a cure for the one will also be a cure for the other. It matters not how much two diseases may be at variance in their general aspects; if to the same causes the two are to be attributed, then the same means will be sure to cure both. To cure any disease, or to counteract any effect, we must work in direct antagonism to the causing force or power. The first duty, therefore, of the cultivator, is to have recourse to thorough drainage, so that no superabundance of moisture may lodge about the roots. Thereafter let him raise and examine his trees in the manner already directed in a former paper, having them thereafter replanted in soil more congenial to their wellbeing; after which, let all the Lichens be thoroughly scraped off with a blunt-edged instrument of some sort, or, what is better, on a wet day or dewy morning in winter, when the tree is at rest and devoid of leaves, let a quantity of lime (quicklime) be procured, which may be thrown with a shovel up through the tree until a thorough coating be obtained all over, and the result will be that in a short space of time all the Lichens will be removed from the trees. This is the more speedy way of getting clear of the enemy, but it is not absolutely necessary, for as a rule the fresh vigour which will be thrown into the tree by root-pruning, &c., will have the effect of throwing off the old bark as well as the Lichens. There are various other Lichens and Mosses which attack fruit-trees, but the one already described is the most formidable and best known. I have therefore selected it for illustration, but may add that the cause and cure in every case are exactly the same.

I have dwelt at much greater length upon this portion of my subject than at first I had anticipated; my reason for doing so is, that it is a point in fruit cultivation which has received little attention, and, so far as I am aware, has never been discussed by any of our horticultural writers.

Having thus disposed of the diseases to which the Apple is subject in this country, I would now draw the attention of the reader to some of the more formidable of the insect enemies with which we have to contend. First of all we would notice the American blight, or woolly bug, as it is commonly called. Various entomologists have given it various appellations, but it is generally known to scientific students as *Aphis lanigera*, which is the name given it by Linnæus, the Swedish botanist. Its common name would indicate that it was an importation from America, but this is universally denied by all American

writers upon the subject. Mr M'Intosh in his *Book of the Garden* says "that this insect appears indigenous rather to France and the north of Germany than to America, from which country it has been erroneously supposed to have reached us." Be this as it may, it is the most destructive of all the insects which attack the Apple, and is at the same time by far the worst to thoroughly eradicate. Not only does it feed upon and destroy the wood of the tree in summer, but in winter it descends to feed upon and destroy the roots. In early summer it may easily be detected upon the wood of several years' growth, as well as the stem and stronger branches, by its white woolly-like appearance. When it attacks the wood of two or three years of age, it often perforates the bark and raises little excrescences about the size of a large pea, which, when broken, appear to contain thousands of eggs or little insects. If not attended to, the tree will soon lose vigour, and ultimately succumb to the evil power of its little enemy. Different authors recommend different cures—as, for instance, Mr M'Intosh recommends first "the washing of the parts affected by a solution of sulphuric acid, in proportions of $\frac{3}{4}$ oz. by measure to $7\frac{1}{2}$ oz. of water, applying the liquid with a piece of sponge tied to a piece of stick, or by a small soft painter's brush." Or again he recommends "spirits of turpentine, strong whisky or gin, applied to the patches infected." On the other hand, Mr Thomson recommends "scrubbing with soap-suds, and then painting with lime-water or washing with tobacco-water, soap-lees, vinegar or sulphuric acid diluted with water, as well as painting with clay." Any or all of these may prove a thorough antidote, but from experience I cannot speak of them. I can, however, recommend a cure which I have every confidence in, and which from experience I can recommend as thoroughly effective. To Mr Rose, gardener to her Majesty, I am indebted for the receipt; and I trust I may not break confidence with him in thus giving to our professional brethren, what I have not the slightest doubt is one of the best, if not *the* best, cure extant for the bug. To one part of spirits of tar, one part turpentine, must be added two parts of train-oil, which must be well mixed, and have added either soot or clay to give it consistence. Let this be applied to the parts affected, and to them only, with a painter's brush, rubbing it well in. By going over the trees thus three or four times during the course of the season, the likelihood will be that the whole colony will be extirpated, at all events the second year will be sure to do it. It may be as well, however, in winter, to remove the soil for a few inches deep around all trees affected, so that, should any have escaped detection in summer, they may have a chance of being entirely removed in winter.

JAMES M'MILLAN.

(To be continued.)

PROPERTIES OF FRUIT, &c.—FRUIT-JUDGING.

THERE seems at the present time nothing less understood by a great number of practical gardeners than the properties of fruits. Seldom do we visit a show, but we find the opinions of exhibitors and others as varied as the articles on the exhibition tables. The standards by which the decisions are given change almost as often as fresh judges are brought into the field. We had proof strong enough last year, when Grape-judging was so freely discussed, that there seemed to be no real standard by which their merits were decided. That question, I believe, still remains open; and while it does so, can we be surprised at the rise and fall of Horticultural Societies? It is impossible that they can have that support by growers to which they are entitled. If a young exhibitor, for the first time, brings for competition fruit which both his employer and himself believe to be of the best quality (all the necessary points having been duly considered), and finds the censors give their verdict in favour of fruit which said exhibitor would consider unfit for his employer's table, he would begin to inquire by what "points" they decided? A bitter pill would of course have to be swallowed, with a resolve to make up his mind next time to exhibit by the standard of what he might consider to be that of the society. But "many men, many minds." A change of judges gives a change of "points," and the second case is as unfortunate as the first, as then genuine quality, perhaps, would be considered and understood, and a verdict given accordingly. If the standard of quality had been adhered to in the first case as it was in the second, the hopeful exhibitor would probably have become a successful competitor and warm supporter of the society, instead of withdrawing his name from the list of members in disgust. From such facts (and many of them have come under my notice of late years) it is not to be wondered at that complaints are made about so few entering as competitors for such tempting prizes as are offered by some of the great societies. We read in a contemporary that many of the articles at the great show held in Manchester were barely a competition, but the prizes for them were taken almost without opposition. People in the country must know what they should take, and what to leave at home, before they spend money and time exhibiting. What is wanted would be a proper standard, which would meet the wants of all the societies in the country. The properties of fruits and vegetables in print, and recognised by the leading authority as being correct, would be one of the most valuable additions to our garden literature extant. Glenny's work on the properties of flowers is universally recognised by our most enthusiastic amateurs as being a safe guide, and it is most exten-

sively used throughout the country ; indeed, some societies have a margin in their schedules giving the points for each article ; and the satisfaction this gives is most astounding.

The tasting of Grapes is a rock which many growers have split upon. Though we go in for good flavour as being of primary importance when judging, at the same time we would like to be certain that the censors know what good flavour is ; and on no account would we submit to having men whose palates were continually saturated with tobacco juice, as we have frequently known to be the case, and the "chew" had to be pulled out to admit the fruit. With such palates the Duchess of Buccleuch and Muscat would be brought down to the level of Trebbianos and Black Prince, and *vice versâ*. Sweetness alone with Grapes (although the flesh was of a raisin texture) is all that is required by some censors, and they decide accordingly. If proprietors could believe in this standard, there would be few Grapes home grown (comparatively), as raisins could be bought from 8d. to 1s. per pound, instead of being at the expense of forcing them under glass. Besides sweetness there should be vinous juice, melting pulp, small stones, and thin skin, and an absence of disagreeable acid. Shrivelled dry berries should be shown no quarter any more than bad colour and loose stringy bunches. Mostly every fruit and vegetable has to meet the same difficulty at exhibitions as Grapes, and thus we often see vegetables judged by a standard which would not entitle them to a place on the dinner-table. The points which decide a good Cucumber are given in the *Journal of Horticulture* (page 77), which I think will be generally admitted to be all that is desired ; and if all judges and exhibitors were guided by that standard, there would be few Cucumbers exhibited with yellow ends as long as cigars, seedy, and pliable as india-rubber. Crisp, fresh, handsome fruit would not be passed over as they often are, at provincial shows especially. At the forthcoming "International" to be held at Edinburgh, great justice in awarding the honours may be relied on. The names of the judges warrant this. They are well known as men of high standing, and many of them have led the van as growers and exhibitors for years. We would strongly advise those who are to appear in the competition list for the first time to give quality the leading position while selecting their articles, as mere bulk will only be telling when quality is present. First-rate kinds will easily "throw" inferior kinds, however well the latter may have been managed ; as, for instance, with Grapes, Black Prince will have no chance with good Muscat Hamburg, or White Nice and its varieties will be insignificant beside good White Muscats, except when weight only is desired.

M. TEMPLE.

HINTS FOR AMATEURS.—SEPTEMBER.

THERE is much that is pleasant at this season in well-kept gardens. Order, of course, should be stamped on every part of the grounds. Plots should be well filled with vegetables; and every flower-bed and border will now be as gay as they have been all the season; and “keeping” may be said to be the greater part of the labour at present. Whenever crops are done with, the space should be cleared without delay, manure given, and the ground turned up and planted or sown; or, if not required, it should at least be kept free from weeds, which only (by their seeding on the ground) give labour for years to come. Hoeing and surface-stirring must be well followed up, and thinning attended to in time. Allowing crops—such as Spinach, Lettuce, Onions, &c.—to become matted before they are thinned, prevents them from becoming hardy and able to stand the winter. Spinach we allow 8 or 9 inches between each plant, and when growth becomes strong in spring a number of the plants are pulled out by the roots. However, where this crop is liable to die off, it is best to thin by degrees, allowing the plants always to stand clear of each other. The same applies to Onions; and dustings of soot and burnt earth help to keep away grubs, &c. Lettuce can be thinned out in the rows or beds, and the best of the plants planted on a warm sheltered spot. Dryness is of the greatest importance in winter. We prefer a sharp ridge, and planting 6 or 8 inches apart, so that every alternate plant may be cut out when fit for use and a crop left. Lettuce-seed may still be sown. The finest lot of Lettuces which stood the winter were on raised Asparagus-beds, where a few good Brown Cos were allowed to ripen seed, and some were blown about the ground and left to grow. Wood-ashes or dustings of lime are necessary to keep grubs and slugs in check. Cauliflowers may be pricked out where they are to stand the winter. Shelter from the east and north is necessary. A piece of rather dry ground, measured to the size of a frame, may be pricked full, and the frame placed over to keep off rain and sharp frost. When the season is advanced, hand-glasses are useful for protecting and bringing on early Cauliflowers. A sloping bank, well broken and in moderately rich condition, answers well. The lights are fitted on, and the spaces filled with nine plants or more, to be reduced to five in spring, when they are earthed up. To get them very early we have often kept the plants in pots, allowing them plenty of room to grow. Some sow the seed in a box about the beginning of November, and keep them growing near the glass, with plenty of air and free from damp, and prick them out in March. They are about as early as those sown late in August. We give both

systems a chance, and sow again in February, and by the three sowings for early work we are always sure of plenty of early Cauliflower; but if the plants are drawn up weakly for want of light and air, ruin is certain. Let ground be well prepared for a plantation of Cabbage. Strawberries trenched down, and if the ground when turned up is poor, a good coating of very rotten manure under the top spit will help the Cabbage on in spring when the roots reach it. We strongly object to either sowing or planting (at this season) in ground newly dressed with rank manure. Cabbage may be planted doubly thick at this season, so that every alternate plant can be cut for early use, and the crop left at proper distance afterwards. Puddle the roots before planting in a little soot, cow-dung, and earth, mixed with water, which will help to keep grubs at bay after planting. Thick-skinned grubs often secrete themselves by the necks of the plants and eat them through. Hand-picking is the only effectual remedy we have tried for getting rid of them. The smaller Cabbage in the seed-rows or beds should be pricked out in a sheltered position to stand over for February or March planting. Rank-growing Parsley may be cut down to give a supply of tops in early winter. Let plenty be planted out from the thinnings of later successions. When allowed to become crowded, the leaves are weak, the quality inferior, and the frost and wet act severely on the crowns. Lift Potatoes as they become ripe. Medium-sized tubers may be placed in the sun to become green. All seeds should be gathered as they become ripe. Some of them can be kept in pod, where they cannot be scattered about, and cleaned out and put in bags when weather is wet. Keep up supplies of Salads. Larger quantities of each kind may now be sown; they will last long in the cool season, and can be protected when frost is expected. This applies to Cress of sorts; American and Golden are excellent, Radishes and Mustard. Where French Beans are likely to last long, they should have some kind of temporary frame made round a portion of them, or hoops bent over them so that mats may be thrown over for protection. New Zealand Spinach, Ice-plant, or any other thing useful through the autumn, should be protected if they are wanted. Tie up Endive to blanch, or place flower-pots over the plants. Celery and Cardoons may be earthed up. A month or less before they are wanted will do. We do not hold with earthing them up piecemeal, but give a good surfacing of decayed manure, covered with a little earth, and a portion is earthed up as required; and when fully-grown late crops are forward enough, they are earthed up all at once. No soil should fall in their hearts, and the leaves should be kept clear above the soil. Soakings of manure water will be of great service if the weather is dry. Onions, if not already pulled, may be taken up soon, dried a

few days, then stripped of the greater part of their tops, tied to sticks, say, 2 or 3 feet long, and hung up in a dry shed where the air can play freely at all times. Laying them on floors in lofts is a bad practice, except the air can circulate from all sides. Injury from frost need not be feared if the bulbs can be kept thoroughly dry.

Cucumbers and Melons will require careful attention, now that nights are becoming colder. Keep up a regular heat by linings or otherwise. Water, when required, should be given in the mornings. Sprinkling the plants where dung is used will not be necessary now. Air must be given on every favourable opportunity. Keep Strawberries free from runners, so that the crowns may have all the benefit of the plant. Some have faith in cutting off the entire foliage from the plant; but we never tried the experiment, and to those who tell us of their success by this practice, we only (in reply) say that success would have been much greater if the leaves had been preserved. Thinning overgrown crowns is quite another thing; we have often to do this, our ground being very deep and rich. Where young plants are scarce, it is a useful practice to save the best of the crowns when rooting out old plants, and plant them in well-prepared ground, on a large brake of Sir Harry and British Queen. Treated thus, we had this year a splendid crop of very large fruit. The divisions were planted last October. Protecting fruit from birds must not be neglected. When the grain from the fields is housed, many birds return in flocks to gardens. Gather fruit as it ripens; bruised or fallen ones should be kept separate for using up. As the store-rooms get filled, air should be kept on, and for a few weeks after the crops are all in; then a close, dark, and dry room is most suitable for long keeping. Fruit-rooms, before they are filled, should be fumigated several times with sulphur, and thoroughly washed and dried. Cleanliness is of great importance to fruit-keeping; damp is a great evil. No growths should be allowed to grow on fruit-trees now; everything should be done to expose the wood (for next year's fruiting) to sun and air. A good washing with a syringe or engine should be given to Peaches, Nectarines, Apricots, &c., to clear off dust and insects. If mildew appears, let a good dusting of sulphur be given. Trees are too often neglected with water at the roots after the fruit is gathered; premature ripening takes place, and perhaps accompanied with mildew; the wood looks hard and fruitful, and opens great clusters of flowers in spring; but as the season advances the greater part drops and the cry is, "Severe weather," "Wet," and everything but the right thing, when the whole evil might have been prevented by careful autumn treatment. Keeping the shoots long off the walls in autumn is another evil to be guarded against. Unripened wood is an evil on the opposite side. While some advise

getting the wood well hardened and brown, they sometimes omit to mention the necessity of keeping the foliage and roots healthy. Our early Peach-trees, which ripened their fruit in June, are now quite green in foliage. The wood is brown all over, and when the hand is drawn over the fleshy leaves they fall easily off, and the wood is clustered with buds. The roots are near the surface, and both water-pot and syringe have been freely used hitherto. With a current of air passing over the whole surface (dryness is now necessary for a time), we could always keep trees on walls in similar condition. Healthy fibre is the principal agent in securing success. Our late trees, which are very heavy in crop, were punished in the spring by keeping the ventilation open in all weathers. Many of the newly-formed fruit fell off, but plenty remained to be thinned off. Raspberries done fruiting may have the old wood cut out to let air in among the young canes; but where the canes are liberally treated, there will be plenty of fruit till the frost takes them off. Good mulching in spring secures all we require till October, though some tell us we have to get "perpetual-bearing" Rasps for autumn supply. We can manage nicely with Falstaff. A quantity of a wild white kind brought in from the woods last spring, and planted on a trench well filled up with dung and leaf-mould, is now bearing crops of fruit, many of which are an inch through. The canes were cut down to within 2 feet of the ground. Morello Cherries and Currants to be kept for some time on the trees should be kept dry if possible. Thin canvas keeps off wasps and lets in air, but rain splits the Cherries and rots the Currants. Oil-cloth to take off and on would be useful if the fruit were worth the expense. Trees in great vigour should have their roots half lifted, cutting any tap ones clean off, and make the ground hard under them. Dung placed under the roots is a great mistake, as it leads them downwards.

All watering may now be done in the morning; more care is necessary, as plants require less of it. Drainage should now be kept well cleared, and no worms in pots should be tolerated. Clean pots and open healthy surfaces are of great importance.

Stake Chrysanthemums, if not already done. Let the wood cover the stakes as much as possible; nothing is less in accordance with good taste than a mass of sticks propping a plant. Dahlias and all other autumn-flowering plants require to be well secured against wind. If Carnations, Pinks, &c., are to be grown in pots, they should be lifted carefully, and potted in good turfy loam and sand, free from wireworms, and placed on a hard surface where the water would drain off freely. A frame with lights which can be pushed on to keep off heavy rains is of great advantage. We leave hundreds of red and white Clove-layers on the stools all winter, and plant them in well-prepared ground in March. They bloom well from

July to Christmas. Anne Boleyn Pinks are valuable for flowering early. The scent is so good and the colour uncommon, every garden should have long lines of them. They are easily managed, and very hardy. Bulbs—such as Hyacinths, Tulips, Narcissus, &c.—should now have attention. Purchasing is a mere lottery. High prices are often taken for very inferior kinds. Last season we had far finer flowers from bulbs bought at 50s. per hundred than those we were charged 1s. 6d. each for. Nevertheless, novelty requires a price, and “fanciers” are seldom opposed to paying for their hobby. Bulbs should be solid, heavy in proportion to their size, and quite free from decay on any part of them. The largest size are seldom the best for throwing compact and vigorous spikes. Good turfy loam three parts, one part decayed manure and sand, will give vigour throughout the whole period of growth. However, when potting three or more bulbs in a pot, we put extra rich stuff over the drainage, so that the roots can have plenty when they go down. Manure-water may be freely given when the spikes are showing. When potting, only half cover the bulb, placing a little sand where the roots are to be emitted. The pots may then be stood on a firm bottom, and 6 or 8 inches of old tan, fine coal-ashes, or sand, placed over their surface, will keep the bulbs in their place till they grow an inch, when they should be taken out and placed in a cold frame for a time, to be taken to force if required, which, however, is best done gently, beginning with a slight bottom-heat, keeping the crowns near the glass. There are several early kinds which come in quickly without forcing. Tulips, Narcissus, &c., do with the same treatment as Hyacinths. Propagate all kinds of decorative plants for next year. Any which are to be saved from frost should be lifted in time, potted in light sandy soil, and placed in a frame, watering thoroughly at first, but afterwards only when really necessary. Large quantities of Pansies should be placed under hand-glasses, or behind a wall; they are of great service where glass is scarce. Rose-cuttings will root freely in sandy soil if they are taken off with a “heel” joint. All plants which have stood out through the summer, and are to be under protection through the winter, should be taken in now. Let the pots be thoroughly washed, the surfaces stirred; all drainage must be secure and free from worms. A little clean soil placed over the surfaces of the pots will give a neat appearance. Hardy annuals for spring decoration may be sown at the end of the month. Pelargoniums which have been cut down and well broke into growth, may be reduced at the roots and potted into smaller pots, using rather sandy loam; but richer soil is necessary after they have made plenty of roots. Cinerarias, Primulas, and other favourites may have more sun, and should be looked after for green-fly. Weak manure-water may be given when the pots are full of roots. M. T.

NEW PLANTS OF THE PAST MONTH.

WHAT the month of July furnished in the way of new plants would be found at Manchester on the occasion of the great exhibition of the Royal Horticultural Society. The great majority of these were not shown for the first time, but some were seen that had not appeared in public before. New British Ferns were largely represented, and many first-class certificates were given. The chief of these were taken by two of the foremost private cultivators of the day—viz., J. E. Mapplebeck, Esq., Moseley, Birmingham, and E. J. Lowe, Esq., Highfield House, Birmingham.

The following new varieties of British Ferns received certificates : From Messrs Stansfield & Son, Todmorden : *Polypodium vulgare elegantissimum*, apparently the same as *Cornubiense* and *Whitei*, a remarkable *Davallia*-like specimen. *Lastrea montana crispa*, *Blechnum Spicant projectum furcans*, and *lancifolium anomalum*, *Athyrium Filix-fœmina* Shawi, and *Athyrium F.-f. Stansfieldii*, first-class ; and *Athyrium F.-f. Staleyii*, second-class. From J. E. Mapplebeck, Esq. : *Asplenium marinum ramosum* Claphami ; *A. trichomanes incisum* Claphami ; *Athyrium amœnum*, Craigii, *eulophos*, *Mapplebeckii*, *furcillans* ; *Blechnum Spicant Mapplebeckii*, a charming cristate form ; *Polypodium vulgare semilacerum robustum* ; *Scolopendrium vulgare hemionitoides*, *crispum latum multifidum*, and *semipinnatum*, first-class ; *Scolopendrium vulgare Gloveri*, *spirale nanum*, and *perafro cornutum*, *Polypodium vulgare kraspedomenon*, and *Lastrea Felix-mas foliosa*, second-class. From E. J. Lowe, Esq. : *Scolopendrium Victoriæ*, *cuticulare*, *rugosum Bellairsiæ*, *tridentiferum optandum*, *poluklonon*, *thusanasson*, *gloriosum*, *marginato-undulatum* and *decorum* ; *Asplenium marinum capitatum* and *imbricatum*, *Polystichum angulare lineare laxum*, *coronare*, *oxyphyllum Elworthii*, and *laudatum*, *Athyrium F.-f. Fraseri*, *amœnum*, *Hookeri*, and *Edwardsii*, all first-class.

W. B. S. Williams, Holloway, London, received first-class certificates for *Cibotium Schiedei furcans*, having most of the divisions of the frond forked ; and for *Todea intermedia*, a name indicative of its appearance, which is exactly intermediate between that of *T. hymenophylloides* (*pellucida*), and *T. superba*,—sufficiently so, says the *Gardeners' Chronicle*, “to suggest the idea that botanically these plants may form but one species. The plant had been imported amongst others from New Zealand. It has the stalked fronds of *T. hymenophylloides*, while the lamina, instead of being plane, is frilled after the manner of *T. superba*, though in a less degree.” In a group of fine-foliaged plants Mr Williams also exhibited a remarkable form of *Cordylina indivisa*, having unusually broad leaves and a particularly

noble and elegant appearance. It was subsequently awarded a first-class certificate under the name of *C. indivisa latifolia*. A similar award was made to Messrs Barron & Son, Borrowash Nurseries, Derby, for *Abies Douglassi acutifolia*, with a very distinct character.

On the occasion of these great shows, it is the custom of the Council to delegate to the Floral Committee the power of recommending specimen plants, evidencing meritorious culture, for special certificates, or the higher award of silver medals. On this occasion silver medals were awarded to Mr W. E. Dixon, Norwood nursery, Beverley, for a splendid mass of *Anæctochilus Lowii*. To Mrs E. Cole & Sons, Withington, Manchester, for *Ixora Colei*, a new white variety, of which a good specimen was shown in fine flower; and to a noble mass of *Alocassia Jenningsii*, from Mr Stevenson, Lark Hill, Timperley.

There was the usual abundance of new florists' flowers, though but few of them were of first-class excellence. A first-class certificate was awarded to Messrs Downie, Laird, & Laing for gold and bronze *Pelargonium*, *Imperatrice Eugenie*, a finely-marked variety of robust habit, having a strongly-marked reddish chocolate zone on a golden leaf-ground. Mr Charles Turner, Slough, received first-class certificates for *Picotees* *Admiration* and *Miss Turner*, the former a heavy rosy-purple edged flower of the finest quality and fullest substance, the petals large and stout, and regularly marked; the latter a medium light rose-edged flower, full and finely marked. Mr C. J. Perry, The Cedars, Castle Bromwich, Birmingham, who contributed some splendid cut *Verbenas*, received first-class certificates for the following:—*Rising Sun*, glowing salmon-red, with small white eye surrounded by a rich deep maroon ring; and *Butterfly*, warm flesh-colour, with a striking crimson ring round a pale eye.

The termination of the large shows leaves only the bi-monthly meetings of the Royal Horticultural Society as the occasions when new plants can be produced. At the meeting on August 3d, first-class certificates were awarded to two subjects in a group of very interesting plants staged by Mr Green, gardener to W. Wilson Saunders, Esq., Reigate—viz., *Trichotosia ferox*, and a *Dieffenbachia* species from Brazil. "The former was perhaps the most interesting subject shown at the meeting, the whole of the stem and leaves, which are of a dark-green colour, being covered with stiff brown hairs; while the flowers, which are small, and of a pale violet or brownish colour, with a streak of orange down the lip, are produced in longish, pendulous, zigzag spikes, which give to the plant a very graceful appearance." The *Dieffenbachia* had large dark-green leaves, and is distinct in character. Mr Pilcher, gardener to S. Rucker, Esq., Wandsworth, received a first-class certificate for a very fine specimen of *Hæmanthus cinnabarinus*,

having a large and showy umbel of orange-coloured flowers. *Calamus intermedius*, a very graceful Palm, with feathery foliage, received a first-class certificate : and a species of *Odontoglossum*, named *Schlieperianum*, with large pale-greenish yellow flowers, received a second-class certificate. Both of these came from Mr William Bull, Chelsea, London. A first-class certificate was awarded to Mr T. Howlett, of Oxford, for *Athyrium Filix-fœmina* *Kallothria*, a remarkably fine variety of the Lady Fern, and so delicate in the pinnules as to resemble a *Todea*.

First-class certificates were awarded to Mr William Chater, Saffron Walden, for the following Hollyhocks : *Constance*, pale flesh ; *Walden Queen*, pale rose ; *Carus Chater*, dark crimson ; *Leah*, tinted yellow ; and *Juno*, flesh-coloured, tinted with blush. Mr C. J. Perry received first-class certificates for the following Verbenas : *R. H. Vertegans*, bright purple, with large dark centre ; *Rev. J. Dix*, pale flesh-colour, with dark rose eye ; *Thomas Hyatt*, a dark magenta *Self* ; and *Joseph Sanders*, rich deep scarlet, with lemon eye. Messrs Bell & Thorpe, Stratford-on-Avon, received a first-class certificate for variegated zonal *Pelargonium Macbeth*, a finely-marked variety with a good golden leaf-margin ; also for *Petunia Beauty*, a single variety, with flowers of a pale lilac ground-colour, with purple throat and veins, and of fine texture. Mr H. Tirebuck, Luton, received the same award for a dark pink bedding *Pelargonium*, named *Gustave de Rothschild* ; habit dwarf, and very promising as a bedder. Also to Mr Eckford, gardener to Earl Radnor, Coleshill, Berks, for zonal *Pelargonium Coleshill*, a bright scarlet-flowering variety of fine quality. Mr George Smith, Tollington Nursery, Hornsey, also received first-class certificates for two handsome nosegay *Pelargoniums*, named *Claudius* and *Soleil*, the former in the way of *Amy Hogg*, but with immense trusses of flowers ; the latter having bold and showy trusses of bright scarlet flowers. The same award was made to a handsome nosegay named *Sydney Dunstan*, with large trusses of brilliant scarlet flowers. This was exhibited by Mr J. George, gardener to Miss Nicholson, Putney Heath, who was also the raiser of the two varieties exhibited by Mr George Smith.

R. D.



NOTES ON HARDY HERBACEOUS PLANTS.

Primula.—This is a very beautiful and interesting group of hardy border and rock plants, which in bygone years was much admired and extensively cultivated in this country, but latterly it has been entirely neglected, at least in the gardens of the rich. It is rather

astonishing that it should be so, Primulas are so fragrant, so beautiful in colouring, and so neat in habit; and the majority of the species, flowering as they do in spring and early summer, present a character so desirable, that one would think lovers of flowers, whether professional or amateur, could not easily forget or forgo. There are signs, however, of the old love being taken up again. Some beautiful varieties of the Cowslip and Primrose are found very useful in the spring flower-garden, for which they are very fit; and the catalogues of florists and seedsmen are swelling with new species and varieties in addition to many old and well-known sorts. The majority of Primulas are very accommodating in cultivation, adapting themselves to many kinds of soils and situations, but are most at home in sandy loams, deep and moist, but well drained and in moderately shady positions. They are easily propagated by seeds, cuttings, and division, the last being the simplest and easiest process where large increase is not an object. In laying in first stock, seed is the best and cheapest way in the case of the varieties of *P. Auricula*, Primrose, and *Polyanthus*, unless fine named sorts are wanted, when they must of course be purchased in plants, and by name, the same as with other florists' flowers; and the finer and more rare species must be got in the same way, because seeds of those are not always procurable true in this country. For a couple of months or more after sowing the plants do not require much room, and are liable to be destroyed by slugs and other pests whilst in the tender seedling state. A cold frame, hand-lights, or glasses, should therefore, if possible, be devoted to them, in which they will be more easily guarded against all enemies than if they were in the open ground. If many sorts are to be sown, small pots should be used to sow in, and they should be plunged in sand or coal-ashes. The soil should be sandy loam, peat, and well-decayed leaf-mould, in equal proportions, with plenty of sharp sand to keep the whole sweet and open. Sow thinly, and keep the soil regularly moist till the plants appear, when caution in watering will require to be exercised to prevent damping, to which Primulas are all rather liable in their first stages from seed. As soon as the plants are big enough to handle, they must be pricked out thinly in pans, pots, or boxes, and returned to the frame, or set in a shady, warm, sheltered place, and well attended to with water,—taking care, however, not to allow the soil to become stagnant with too frequent waterings, which would very soon be followed by sickness and death to the plants. Primulas delight in moisture in the growing season; but a good sound watering at intervals, not daily dribblets or sprinklings, is what they want. When the plants have made sufficient roots and bulk of leaves they may be transferred to their permanent

quarters and well watered after planting, when they will need little more attention for the season beyond keeping them clean. If the seeds are sown in the end of March, the plants treated as above directed will bloom the following spring. In the case of getting up large quantities of Primroses and Polyanthuses, for the purpose of planting out in woods and suchlike places, the foregoing directions would be troublesome and expensive, as it is only meant for the more valuable and rare species and varieties. The common varieties are best sown on a warm border in the beginning of April, in beds, broadcast or in drills, and, when fit to handle, planted out in nursing-lines in rich soil well manured with old hotbed dung. Cuttings are best put in in spring, when growth has fairly begun: the same soil as recommended for seeds is suitable for cuttings. Division should be done first after flowering is over, unless large increase of particular sorts should be desired, or when the plant is very weak and would obviously be invigorated by being divided immediately before flowering commences; in such cases everything should be done to prolong the growing period, and all flowers removed as soon as they can be got hold off. Under the name *P. veris*, Linnæus included the three forms of *Primula* most common in this country,—the Primrose, *P. vulgaris*; the Oxlip, *P. elatior*; and the Cowslip, *P. veris* of modern botanists, being considered by him essentially the same for the purposes of science. But to gardeners and florists it is convenient to distinguish between the three forms, which are well marked and pretty constant in cultivation, at least *P. veris*, the Cowslip. The common flower-stalk in this form rises considerably above the leaves, supporting an umbel of flowers; and in the single varieties, the corolla is small and cup-shaped—features that are lost sight of in the double varieties, or florists' Polyanthuses. From this form there are many varieties, some of which are most beautiful things in their season, and worthy a place among choice plants. The commoner single sorts are suitable for planting in woods and on banks, and about the edges of masses of shrubs.

P. vulgaris.—The Primrose is distinguished from the Cowslip by the flower-stalks having the appearance of springing directly from the root, and bearing each only one flower: there is, however, a common footstalk so short as to be concealed by the leaves. The corolla in the Primrose is larger than that of the Cowslip, and flat. There are many very interesting and beautiful varieties of Primrose, both single and double; the single varieties need not be enumerated, but are very useful for planting out in clumps or patches, as recommended for the commoner forms of Cowslip. The best of the double varieties are the flesh-coloured, the white, the sulphur, the lilac, the red, the coppery,

and the dark purple : the three last are rare, and difficult to procure. All are invaluable for the spring flower-garden, for rock-work, and for many other purposes in the kitchen and fruit gardens.

In *P. clatior*, the Oxlip, the common flower-stalk is generally shorter and stouter than that of the Cowslip, but is variable in length and strength ; always, however, showing the umbel above the foliage, and the corolla is broader and flatter than that of the Cowslip. This is the least constant form of the three, and its varieties are less numerous and interesting than those of the other two ; they are mainly useful for planting along with the commoner sorts of Cowslip and Primrose in woods and suchlike places.

P. auricula is the parent of the well-known varieties of stage and border Auriculas. In its native habitats on the German, Swiss, and Italian Alps, it is rather a variable plant, but not to such an extent as to shadow forth, even remotely, the endless and beautiful combinations that have sprung from it in the florist's hands. Yellow and red are the most common colours in nature, with purple occasionally, and Sells are more common than variegated varieties, which is also true of the majority of florists' varieties raised, only the variegated forms are the most favoured. It would take more space than can be allowed here to notice in detail the method of cultivating and raising the finer varieties, which have been most favoured by florists ; and it is the less necessary to do so, because treatises on the subject have been long in existence, and give details ample and curious enough to satisfy the most particular inquirer. Almost any of the varieties are worthy of cultivating, were it for no other purpose than that of yielding early crops of cut flowers out of doors. Where these are wanted in quantity, the fragrance and pretty colours of the auricula render them very desirable. All that are suitable for this purpose may be grown in the borders of the kitchen-garden, about the margin of shrubberies, &c. ; and they will succeed in any common garden-soil, if not too heavy and wet.

W. S.



THE EDUCATION QUESTION.

WE have read with sympathetic interest the clever and suggestive papers discussing this subject in these pages for some months back, and we are anxious to see the Editor's final remarks on the subject, as we are certain there is no gardener in the kingdom better qualified from experience or judgment to say what the gardener's education ought to be, what sort of young man from this point of view makes the best gardener, and how education is to be applied in order to test the

whole profession—if by education it is to be done, as some suppose. We are not going to plunge into the discussion for or against any particular view of the subject. Much that we should have liked to have said has been very much better said already; not fool enough to rush into criticism, having a wholesome dread of blows, still not sufficiently angelic to fear to tread in the wake and shade of wiser men. Since the Editor invites opinion on the subject, we propose only to give a few notions about education in general, and gardeners' education in particular. We have been trying to define in a few words, in our own mind, what education is, but have failed; and yet we hear of wonderful lots of people having finished their education. We readily understand a process of education. That education is not knowledge is certain; and one may have lots of knowledge and no education, and yet in being educated we are acquiring knowledge. Education seems something preliminary to knowledge—the key to open the strong box, the Rosetta stone which is to decipher the great hieroglyph of knowledge. Education is a process of training for some purpose, as we do dogs and soldiers; but we may end with the training and never begin the purpose. What lots of educated people we have nowadays of both sexes to no purpose! Indeed, to be educated has become quite a fashionable distinction, and yet to be highly educated is compatible with any degree of ignorance. Indeed, we venture to say that the ignorance of some of our acquaintance is in proportion to the extent of their education. We know young gentlemen who have been jockeyed through the Eton and Oxford course, and finished complete muffs. No doubt Lord Dundreary is an educated man. However, we forget the purpose; so the Eton and Oxford education may be the training for gentlemen. We fear many have their power of vision trained away, for to be highly educated is to see nothing, to look vacant, to admire nothing, to laugh at nothing—in short, not to be vulgar: savage accomplishments; but extremes meet. We hope the young gardener is not about to be so super-educated as to overlook the “very common things.”

If education be a training for a purpose, the gardener must have his special training; and a twofold training—a mechanical and a mental. The soldier gets his training on parade, the gardener must have his in the garden; but as the parade-ground could never make the soldier a commanding officer, neither can the garden alone make a true gardener. Every schoolmaster knows that education is not so much a stuffing in as a pumping out of the mind, to give room for wholesome ideas—indeed, a mind simple, vacant, and hungry, as it were, is in the best possible condition to receive instruction; but a mind choke-full of conceit and great notions of its acquirements wants pumping out.

Most young gardeners require a great deal of pumping out, as masters find to their cost in temper and patience. At any rate, like the soldier in the awkward squad, he requires his hands, legs, and eyes disciplined in the garden. This discipline must embrace a pretty extensive range of subjects,—levelling of ground, planting, training; in fact, everything which demands skilled labour. This, we take it, is a very important part of a gardener's education indeed, seeing that it is essentially a practical profession, like surgery. All the very best generals, from Frederick the Great downwards, have been stern disciplinarians. We must learn to obey before we can command. The mental part of the gardener's education seems, however, to monopolise attention at present, as if that were the great want of the class. We do not think the mental ability of the profession is at all retrograding as compared with its practical efficiency. We have a great army and navy fit for any practical undertaking, but we do not hear of many great admirals or generals. Gardening is not in that position; we have abundance of great generals. We do not, however, mean in the least to underrate the importance for all gardeners of a well-disciplined mind, and it well stored with all sorts of useful information bearing on the subject; indeed, such is necessary to every one who would rise above mere routine. The amount of education the gardener requires to begin with, and how it is to be acquired, seems to be the vexed point. Much preliminary learning does not seem at all necessary—a little learning in this case might be a troublesome if not a dangerous thing; and yet we are told that if gardening is to be maintained at all, the rising generation ought to be acquainted with all the ologies—indeed, most of the sciences which end with *y*. In the view of a large amount of work with a minimum of hands, if we were asked to disestablish our present rather unscientific though generally industrious staff, and accept a batch of those young philosophers in their stead, we own we should dread the result. In addition to the training which our future gardener receives at home, the school accomplishments of reading, 'riting, and 'rithmetic must of course be given; and let me say that the young man who can really read well, write well, and is master of the fundamentals of arithmetic, has accomplished a very great deal—indeed, we do not hesitate to say that he has accomplished all that is necessary at school in view of his prospects as a gardener. His practical education must begin early. I repeat, it is no small matter to be able to read. Thousands of grown-up people fancy they can read the Bible, but they cannot. Many young men read through useful books, and after all they are not read; they must mark, learn, and inwardly digest what is read. Some scientific books are often read just as a pastime, as we would a novel; indeed, many are written

simply as sensational science. It is certain that the man who cannot read well can never write well. We do not refer to mere handwriting, although to be a good penman is an excellent acquirement, but to the manner and matter written. The man who knows his own language well can never make many grammatical mistakes. Many a gardener has been able to overcome otherwise insurmountable difficulties by being able to lay those difficulties succinctly, forcibly, and clearly before his employer in writing. A man's letter is a pretty good gauge of his mind. We are sorry to say that we have received letters from head-gardeners of which we were heartily ashamed, insomuch that we felt degraded that such men should be chosen to occupy the same professional platform. Handwriting may be like the address of Tony Lumpkin's letter; but as the same authority sagely remarked that the inside always contained the cream of the correspondence, we would forgive the crabbed penmanship if the matter make us respect the writer.

We have said that the gardener must begin early the practical branch of his education; therefore he has no time to spare, even if it were expedient, in view of his future prospects, to pursue an advanced course of school education. Young men, as a rule, cannot be grounded in the sciences before being turned into the garden; but if that were practicable, we think physical geography of the first importance, meteorology and vegetable physiology to some extent. But we open a dangerous prospect for our argument. Those sciences are mines of knowledge for him; with perseverance, energy, and the mental tools with which nature and the schoolmaster have provided him, he will have abundance of opportunity for picking out and storing his mind with a whole cyclopædia of information. We have said the young man does not require to be a ready-made philosopher before entering the garden. George Stephenson was only a pit-boy, and so was George Elliot of the present day; and all our best living gardeners, we venture to say, started early to work in the garden. The very perseverance and energy which enable the young man to educate himself will secure his success in future life. It is that sort of energy which will triumph over the innumerable petty difficulties which are incessantly besetting the gardener's operations.

There is one aspect of education which seems to be overlooked, and which is of much importance to the gardener, seeing that he has to come much into contact with people of taste, and that is the education of the manners: this alone is education among certain classes. While decision of character should be cultivated in the forming and carrying out of plans of operation, nothing is more offensive in a servant than over-confidence and arrogance: deference should at all

times be shown with judgment to the opinion of others, especially employers and superiors. Modesty is characteristic of superior ability. Neatness in appearance and a prompt and ready address are always pleasing to employers. Snobbishness and foppery are utterly contemptible in the eyes of those whose bread we eat, or who are our superiors in position, and who look at us from an elevated social standpoint. An employer respects his servant for what he can do in return for the money paid, and for his intrinsic worth as a man. We ought all to try and know ourselves and study character in others : sometimes it is safe to take some good and successful man as our model. We would recommend to the young man the reading of some books which perhaps many would condemn, for instance the *Kenilworth* and *Quentin Durward* of Sir Walter Scott, the Plays of Shakespeare and the Proverbs of Solomon, to which last we guess no one will object.

The selection of the right man for the right place is a more difficult problem, we think, than that of education. It is discouraging enough for the young man who has industriously devoted his novitiate in acquiring a fund of useful information, to enable him to take his place in a forward position in the profession, to find himself forestalled by another competitor who has few acquired qualifications, except that of having an all-powerful friend. The Royal Horticultural Society are no doubt taking a step in the right direction by the institution of examinations. Those will point the finger of fame to the successful candidates in mental acquirements, but there still remains after all the most essential—namely, the practical test. There are many excellent gardeners with but scant mental learning ; on the other hand, there are many who are choke-full of science, who can talk and write by the hour and yard, yet who, if weighed in the practical balance, would certainly be found wanting.

THE SQUIRE'S GARDENER.



EXPERIMENTS WITH POTATOES.

[The following experiments with Potatoes were conducted under the direction of Admiral Horby, and are very interesting to Potato-growers.—ED.]

WE give below the results of experiments with fourteen varieties of seed Potatoes. All the varieties were treated alike, and sown in black soil on the Knowsley Cottage Farm. Nos. 1, 2, 3, 5, 6, 8, 9, 13, and 14, were obtained from Scotland. All these are good eating Potatoes, the first particularly so ; and of this kind beautifully shaped single Potatoes have been turned up from 28 to 31 oz. in weight.

Weight of Seed sown.	Names of Potatoes.	Weight of Marketable Produce.
1. 14lb.—	Paterson's Blue .	618lb. or 44 times weight sown.
2. 14lb.—	Paterson's Regent .	539lb. or 38 times.
3. 14lb.—	Paterson's Red . .	401lb. or 28½ times.
4. 14lb.—	Dapitree's Early .	394lb. or 28 times.
5. 14lb.—	Paterson's Oval Blue	359lb. or 25 times.
6. 14lb.—	Paterson's Victoria .	329lb. or 23½ times.
7. 14lb.—	Webb's Imperial .	272lb. or 19 times.
8. 14lb.—	Paterson's Napoleon .	229lb. or 16 times.
9. 14lb.—	Dalmahoy . . .	221lb. nearly 16 times.
10. 14lb.—	Pinkeye Kemp . .	200lb. over 14 times.
11. 14lb.—	Arrowsmith's Seedling	179lb. or 13 times.
12. 14lb.—	Fluke	95lb. or 7 times.
13. 14lb.—	Bloomer	92lb. or 6½ times.
14. 8lb.—	Rosse's Early . .	272lb. or 34 times.



QUINCE STOCK.

I WAS pleased to see Mr M'Millan's supplementary paper on this subject, and I am gratified to learn that he is experimenting practically with the Quince: he has my best wishes for his success, and none will be more willing to acknowledge it than myself, and profit by the result. There are one or two statements in his paper, however, which, as they are slightly calculated to create a false impression regarding some of my remarks, I would like to notice as briefly as possible. Mr M'Millan alludes to my remarks about him being guided *only* by "considerations of soil and climate" in adopting the Quince in preference to the Pear; and from the way in which he discusses these points, in their relation to horticulture generally, I fancy he has rather misapprehended me. To the most of what he says on these questions I cannot demur; I certainly agree with him that "considerations of soil and climate" *are* important points to be studied by the gardener—points, indeed, which we cannot easily avoid studying, since they are pressed upon our attention too frequently, and in the most forcible manner sometimes; but in my former article I spoke of these points only in relation to the Quince stock; and Mr M'Millan is aware, as his very explicit papers on hardy-fruit culture indicate, that there *are* considerations, other than soil or climate, to be taken into account in choosing between the Quince and Pear stock; and I think that a careful perusal of my remarks will show, that while I did not ignore the

“considerations” alluded to, I dwelt more particularly on the unsuitableness of the Quince as a *stock* only. Though hardiness is not a feature of it, I do not doubt its adaptability in some respects, as Mr M‘Millan has pointed out; but for the reasons given in my former paper, I say that for permanent plantations it is not *safe*.

Mr M‘Millan admits it to be no uncommon thing to hear a gardener say, “Well, I have discarded the Quince stock as useless.” This is ominous, coming as it does from such an able advocate of the Quince as Mr M‘Millan; and the explanation which he offers is not a fortunate one. Ignorance concerning the mode of treatment may exist in some cases, as Mr M‘Millan supposes, but we know that the Quince stock has been discarded and condemned at different times upon more intelligible grounds, by men who would probably resent the idea of being classed with quacks and pretenders; and besides, information on this, as upon any other horticultural subject, is now so ripe and so accessible that no one need be ignorant who has an interest in being informed.

Since my former remarks were penned, I have had an opportunity of seeing what can be done with the Pear stock at Worksop Manor, Notts. The fruit-trees there are a feature, and Mr Miller is a master in the art of cultivating them. The collection of standard Pears, &c. there is perhaps as fine as can be seen anywhere, healthy, handsome as could be desired, and prolific, and examples of what can be done by skilful pruning and training. Mr Miller is also experimenting with the Quince; and the trees look well, but they are young. However, Mr Miller has no occasion to be alarmed should the Quince fail with him, since the Pear stock serves his purpose so well.

J. SIMPSON.



THE MANCHESTER EXHIBITION OF THE ROYAL HORTICULTURAL SOCIETY.

ON the 19th of July, Manchester was the great centre towards which horticulturists tended from all parts of the United Kingdom—for Scotland, Ireland, and Wales had its representatives there. This annual provincial gathering does afford, in an eminent degree, a great central meeting-point, where the rising men of the present day can grasp the hand of those who have left their mark high up in the annals of horticulture, and come face to face with men they had hitherto only known by reputation. This has long been a *desideratum*, and the provincial meetings of the Royal Horticultural Society well supply it. It is a means of cementing old ties, and of forming new friendships; there is an exchange of reciprocities and an interchange of ideas both secured, the pleasure derived from which lives long after the opportunity has passed away.

On this occasion the Royal Horticultural Society nearly, if not quite, went to

the wall. It was so completely overshadowed by the great agricultural gathering, that it had to content itself with a very sparse patronage, and a probable deficit. The site of the horticultural gathering was badly chosen, though it is not unlikely that there was no choice in the matter. It was on the opposite side of the agricultural gathering, most difficult of access—for all, or nearly all, the conveyances were monopolised by the visitors to its much more pretentious neighbour. The entrances to the grounds would have disgraced a country show, so roughly and hideously were they constructed; the ground was rough and uneven, and where it had been attempted to make the passage through the tents a trifle more pleasant, it had been done by laying down some spits of turf, that soon became loosened, and actually made the way more difficult. The tents were too widely distributed; one, containing the Pelargoniums, Fuchsias, &c., was placed so far away that many visitors would not attempt to reach it over the rough turf and under the broiling sun. Many of the stages for the plants were as hideous as the entrance-gates—huge rough deal slabs without any pretence at covering; and the plants being widely distributed, the naked deformity of the stages became more markedly apparent. Without attempting to enter into the matters of dispute between the Royal Horticultural Society and the Council of the Manchester Botanic Gardens, it was yet a great calamity that these fine gardens could not have been made the site for the show; and to have obtained them, and the *prestige* attaching to them, would have been worth a large sacrifice on the part of the Royal Horticultural Society. There was a most convenient site, numberless appliances, and the undoubted administrative capacity and invaluable aid of Mr Bruce Findlay, at their disposal, but they were rejected. Perhaps, for a place like Manchester, there might have been too much of standing on its dignity shown by the Council. Governing bodies of such a character are too often deeply tainted with this infirmity. A generous man, who understood better the men with whom he was treating, might have effected an equitable arrangement that would have set aside many causes of complaint and heart-burnings, and in all probability have changed a comparative failure into a splendid success. The considerations constituted the dark side of the Manchester gathering—the heavy shadows obscuring to some extent a bright prospect behind them.

There were lesser shadows as well hanging about this gathering. Such a big show as this should never open on a Monday. It must entail a great amount of Sunday work, and there are men who might have, but who did not exhibit in consequence of this. To some, considerations for the religious sanctity attached to the character of the day kept them from exhibiting; others, valuing it chiefly as a day of respite from forced labour, would not make an exception to their invariable practice. Then to those to whom neither of these considerations came with much weight, there was to be met all the inconveniences and disadvantages of Sunday-travelling—no rapid express trains or quick journeys, and in some cases no trains at all. Then, naturally enough, the Monday morning trains were crowded from all parts, and very late in consequence; and those who had to make a journey of 60 or 100 miles found themselves on the ground some hour and a-half too late. This was vexatious enough in itself, but to be told afterwards that they could not have their exhibition cards because they were so late, was enough to call forth the ire of the most placid temperament; and under such circumstances small exhibitors fare badly. A little more courtesy on the part of Mr Elye's subordinates might be attempted another year with the best possible results.

It is always a matter for great regret that the judging cannot be commenced earlier at these large exhibitions; but it is perhaps unavoidable. Two things

invariably happen : first, that a great many of the cut-flowers become scorched up ere they can be examined by the judges ; and, secondly, the company throng the tents, to the great inconvenience of the judges.

The luncheon to the judges and exhibitors went the way of many other things at the meeting—cold, lifeless, and uninteresting. If it is to be taken as representative of the “less pretentious dinner” advocated by the *Gardeners’ Chronicle*, by all means let us have in the future the warmth, life, and vivacity of the meeting at Leicester last year. Not the best chairman that could have been selected from the Council presided ; and excepting that there was something to eat and drink, the whole affair was a miserable abortion. The chairman made an attempt to propose a toast ; scarcely any one knew the nature of it, and no one the purport of the few hurried words in which he introduced it. Such a gathering as that might have been turned to practical account by the Council, but the members of that body present appeared to treat it as a bore. They displayed no generous sympathies towards the important body of horticulturists there met together. The meeting divided into small coteries, and the members of the Council soon disappeared. In the evening there was a gathering in the same tent, under the presidency of W. B. S. Williams, and it would have been well if some of the members of the Council could have been present to hear what was thought of and expressed regarding the proceedings of that day. The chairman struck a keynote that gave harmony to the utterances of each speaker when he asserted that the experience of that day proved most conclusively that the Royal Horticultural Society should no longer link itself to the Agricultural Society in its visits to the provinces, but go into them independently, and stand or fall by its own merits. No one regarded the Agricultural Society as the enemy of the Horticultural Society, but simply that on these occasions it was completely overshadowed by it, and pushed into a remote corner. The Agricultural Society did not require the companionship of the Horticultural Society ; in fact, would rather be without it. Let the Horticultural Society be courageous, and go to the provinces on a purely independent footing ; and if that were necessary, go in an entirely opposite direction to that taken by the Agriculturists, and he (the Chairman) prophesied that it would meet with abundant success, be much more warmly received by undivided sympathies, and be generously supported. That no official of the Royal Horticultural Society was present was severely commented on, as it was considered that hopes had been held out by the Society that its hospitalities should have been more decisively expressed. Concurrently with this, its neglect of the Chiswick gardens was vehemently reprehended, as in its present condition it affords few inducements to practical horticulturists from the country to visit it when in London.

It may be that the Council of the Royal Horticultural Society cares but little for such opinions as these. That they are extensively held is beyond doubt. No one thinks that that body cares for practical horticulture as such ; they see and care only for the show and tinsel they can gather about it, and the aristocratic prestige resulting therefrom. But outside this charmed circle are hundreds of earnest able men who are hourly realising the conclusion, that shows and not realities are inevitable corollaries of such a state of things. It is devoutly to be hoped that something nobler and better will be presently inaugurated in place of the mere outside show too much presented to the Horticultural world at the present day. We may be nearer to this, however, than some wot of : this is certain, that we will do our utmost to aid this revolution ; and when it bursts upon us, if only partially at first, give it our earnest support.

HORTICULTURAL EXHIBITIONS.

ROYAL BOTANIC SOCIETY, REGENT'S PARK, June 30.—This, in all probability, closes the large exhibitions of the Royal Botanic Society. It is stated that they have not been financial successes, and in consequence they are to be abolished. It was in all respects a fine exhibition, the various classes were well filled, and notwithstanding the lateness of the season, the plants were generally in good condition. The Orchids sent from the collection of A. Turner, Esq., Leicester, were remarkably fine, and the group formed one of the principal attractions of the show, which was largely and fashionably attended.

In the amateurs' class for ten stove and greenhouse plants, the best came from Mr Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, who had a magnificent bush of *Phænocoma prolifera*, about 5 feet through, and beautifully flowered; a large and finely-bloomed *Pimelea diosmæfolia*, well-furnished specimens of *Erica tricolor* *Holfordiana*, and *E. Parmentieriana*, the latter a handsome bush, about 3 feet through; *Polygala cordata*, large, and covered with flowers; an equally well-grown and flowered *Dracophyllum gracile*, and a very good *Ixora coccinea*, &c. Mr T. Baines, gardener to H. Micholls, Esq., Bowden, Cheshire, was second, and contributed a nicely-flowered specimen of *Ixora javanica*, about 5 feet high; a large *Bougainvillea glabra*, covered with blooms; a magnificently-furnished specimen of *Darwinia* (*Hederoma*) *tulipifera*, with flowers of remarkable size and colour; a grand bush of *Erica obbata*, and *Ixora coccinea*, &c. Mr D. Donald, gardener to J. G. Barclay, Esq., came third. In the corresponding class for nurserymen, Mr Ransley Tanton of Epsom was first, showing a well-furnished and finely-flowered *Aphelexis macrantha purpurea*, a very good *Allamanda Hendersoni*, about 5 feet high; a splendid specimen of *Kalosanthus miniata splendens*, not fully in bloom; *Allamanda grandiflora*, in good condition; *Stephanotis floribunda*, a good specimen, nicely flowered; and a smallish, though remarkably healthy, *Phænocoma prolifera* *Barnesii*. Mr B. S. Williams was second with very good specimens of *Ixora javanica*, *Allamanda cathartica*, *Stephanotis floribunda*, and *Anthurium Scherzerianum*, with twenty of its brilliant scarlet spathes, &c. Messrs Jackson & Son, Kingston, were third. The best six in the amateurs' class came from Mr J. Ward, gardener to F. G. Wilkins, Esq., who had a beautiful *Allamanda grandiflora*, about 5 feet high and 4 feet through, well flowered; also *Clerodendron Balfourianum* and *Bougainvillea glabra*, both well flowered; a nicely grown and flowered *Phænocoma prolifera* *Barnesii*, *Ixora amboynensis*, and *Dracophyllum gracile*, in good condition. Mr J. Wheeler was second with a very good example of *Aphelexis rosea*, a small though well-bloomed *Clerodendron Balfourianum*, a good *Bougainvillea glabra*, and a neat pyramidal bush of *Ixora javanica floribunda*, &c.

The best ten fine-foliaged plants, in the nurserymen's class, came from Mr B. S. Williams, who had a small but fair specimen of *Sanchezia nobilis*, nicely-coloured examples of *Croton pictum*, large and fine *Latania borbonica*, *Theophrasta imperialis*, *Yucca quadricolor*, and *Cordyline indivisa*, &c. Mr J. Burley stood second with a good *Cordyline indivisa*, *Chamærops humilis*, *Fortunei*, *Yucca aloifolia*, *Dicksonia antarctica*, &c. In the corresponding class for amateurs, Mr Fairbairn, gardener to the Duke of Northumberland, Sion House, took the first prize with a fine group, amongst which were a grand *Thamnopteris Nidus*, *Anthurium acaule*, *Alocasia metallica*, and *A. macrorrhiza variegata*, in good condition. Mr W. Taylor, gardener to J. Yates, Esq., came second, showing in his collection nice specimens of *Littæa juncea*, *Encphalartos latifrons*, *Dion edule*, and *Cycas revoluta*, &c. Mr T. Baines was third with, amongst others, a grand

mass of *Sarracenia purpurea*, a large and well-grown *Gleichenia Speluncæ*, *Croton pictum*, and *Alocasia Veitchii*, &c. Mr Fairbairn was also first for six with good specimens of *Phoenix farinifera*, *Anthurium cordifolium*, *Alocasia zebrina*, *Theophrasta imperialis*, *Croton variegatum*, and *Cocos* sp.

Of Orchids there was a fine display, occupying the usual position devoted for their reception. First and foremost in the whole collection stood the eight sent by Mr W. Archer, gardener to A. Turner, Esq., Leicester, consisting of *Cattleya Skinneri*, a grand specimen, about 3 feet through, covered with its beautiful rosy-purple flowers; a large and well-bloomed *Cattleya Mossiæ*, with fine flowers, though rather pale in colour; a magnificent *Cypripedium barbatum*, covered with flowers too numerous for us to count; a finely-coloured *Lælia purpurata*, *Saccolabium guttatum*, with ten good spikes; *Phalenopsis grandiflora*, with three spikes of large flowers; and a well-flowered specimen of the charming *Odontoglossum Pescatorei*, &c. Mr Wilson, gardener to W. Marshall, Esq., Enfield, came second, showing a very good *Lælia purpurea*, *Cattleya Leopoldi*, with one good spike; *Aerides Larpentæ*, a beautifully-flowered *Odontoglossum Alexandræ*, *Cypripedium Stonei*, with two nice spikes; and *Dendrochilum filiforme*, a small but well-flowered specimen, remarkable for its gracefully drooping greenish-yellow lace-like flowers. Mr B. Peed came third, showing in his collection a well-grown *Aerides odoratum*, scarcely forward enough; a well-bloomed *Oncidium sessile*, *Cypripediums*, &c. For six, the first prize was taken by Mr I. Hill, with, amongst others, *Cattleya Aclandiae*, *Trichopilia tortilis*, and *Aerides Fieldingii*, charmingly-flowered, &c. Mr J. Wheeler had *Oncidium leucochilum*, with a good spike about 5 feet long; and good specimens of *Odontoglossum hastilabium* and *Epidendrum atropurpureum*. Mr J. Lawrence, gardener to the Bishop of Winchester, Farnham Castle, showed a small plant of *Trichopilia turialvæ*, having fourteen beautifully whitish-yellow flowers distributed regularly around the rim of the pot; small nicely-flowered specimens of *Odontoglossum caudatum* and *Epidendrum vitellinum*, and the curious "Turk's saddle" *Acineta*, *A. sella turcica*. The best six in the nurserymen's class were furnished by Mr B. S. Williams, who had a good well-clothed *Sobralia macrantha*, with nine good blooms; a fine *Aerides odoratum majus*, with sixteen spikes not yet fully expanded; and *Saccolabium guttatum*, with two fine spikes, &c. Messrs Jackson & Son were second, contributing *Dendrobium Dalhousianum*, with one spike; *Odontoglossum citrosmum*, *Epidendrum phœniceum*, and a nice spike of *Oncidium obryzatum*, &c. Mr Parker of Tooting was placed equal second with the above; in his collection were *Cypripedium superbius*, with four grand flowers; two good spikes of *Oncidium divaricatum*, and *Lælia Brysiana*, with five fine flowers.

Ferns formed a very effective display. The best twelve in the nurserymen's class came from Mr B. S. Williams, who had in his group excellent examples of *Todea Africana*, *Marattia elegans*, a grand mass of *Gleichenia Speluncæ*, *Cibotium Schiedeii* and *princeps*, and *Lomaria gibba*. Mr T. Baines stood first amongst amateurs, with splendid bush-like masses of *Gleichenia flabellata* and *Speluncæ*, admirable specimens of *Davallia bullata* and *tenuifolia*, &c. In Mr W. Taylor's second prize collection were nice specimens of *Gymnogramma ochracea*, *Asplenium Fabianum*, *Adiantum formosum*, and *Microlepia strigosa*, &c. Mr A. Wright was third. First for hardy British species came Messrs Ivery & Son, Dorking, with a large and exceedingly well grown collection, comprising many fine varieties of *Athyrium Filix-fœmina*, *Polystichum angulare*, and *Scolopendriums*, &c.

The best group of plants arranged in flower-garden style was furnished by Messrs E. G. Henderson, whose collection was tastefully set out on a gently sloping bank, with a very pretty effect. The first and outer row consisted of dwarf bushy plants of *Gnaphalium tomentosum*; next a line of blue *Lobelias*; then came a row of *Coleus*; then a wider row of such plants as *Centaureas*, *Alternantheras*, *Sedums*, *Coleus*, and *Pelargoniums*, arranged alternately in square masses; in the fifth row the same arrangement was followed with *Iresine*, a fine *Heliotrope* named *Jersey Beauty*, and other subjects; and the whole was backed up by a miscellaneous collection of greenhouse and bedding plants. Mr T. S. Ware was second with a neatly arranged assortment of hardy plants, &c.

Pelargoniums, *Fuchsias*, and some other things were not of the finest quality; and of the new plants shown, the best has been already noticed in these columns.

There was, as there generally is, at the last exhibition of the Botanic Society, a good show of fruit. The best collection came from Mr W. Millar, gardener to Earl Craven, Combe Abbey, Coventry, this being the third year in succession Mr Millar has taken this prize. The collection consisted of his very nice *Queen Pines*; fine dishes of *Black Hamburg* and *Foster's white seedling Grapes*, *Chichester Prize Melon*, fine *Royal George Peaches* and *Elruge Nectarines*, *Waterloo cherries*, and *British Queen Strawberries*. Mr Johnson, gardener to the Marquis of Salisbury, was second with a fine *Providence* and a good *Queen Pine*, *Trentham Hybrid Melon*, *Black Hamburg* and *Tottenham Muscat Grapes*, *Violette Hative Peaches*, *Elruge Nectarines*, and a fine dish of *La Constante Strawberries*. Of *Pine-Apples*, the best was a *Providence*, 6 lb. in weight, from Mr Bailey, gardener to T. T. Drake, Esq., *Shardaloes*, Amersham. The best *Queen*, which weighed 4½ lb., came from Mr J. Ward, gardener to T. N. Miller, Esq., *Bishop Stortford*. Mr Ward also took the first prize for a fruit of any other sort with a fine *Prickly Cayenne*, which weighed about 5 lb.; Mr Bailey being second with the same.

As usual there were plenty of *Melons*. The best scarlet-fleshed fruits were: *Standish's Perfection*, *Clarke's Hybrid*, and *Princess of Wales*, the prizes being awarded in this order. The best green-fleshed were an unnamed variety shown by Mr B. S. Williams, *Holloway*, and awarded the first prize, *Hybrid Cashmere* and *Queen Emma*.

For *Grapes*, any variety, in quantity not less than 12 lb., the 1st prize was taken by Mr Miller, *Combe Abbey*, with beautifully finished *Black Hamburgs*; and Mr Davies, *Friern, Barnet*, was second with good well-coloured bunches of *Muscat of Alexandria*; whilst certificates of commendation were bestowed on Mr Henderson, of *Cole Orton*, who showed the *Black Hamburg*, and Messrs *Standish & Co.*, who contributed the *Royal Ascot*; Mr C. Ross, gardener to C. Eyre, Esq., *Welford Park*, Mr G. Thomas, gardener to Mrs Child, *Whetstone*, and Mr Osborn, *Finchley*, also exhibited good baskets of *Black Hamburg*. The best single dish of the latter kind was sent by Mr Henderson, of *Cole Orton*, who had three rather small bunches, but the berries were remarkably fine in size, well coloured, and showing a splendid bloom; Mr J. Douglas was second with very fine examples, and the other prizes were taken by Mr Bannerman and Mr J. Simpson. Messrs *Standish & Co.* stood first for *Muscats* with three nicely-finished bunches of *Muscat of Alexandria*; the same variety was shown by Mr Kemp, gardener to the Duke of Northumberland, *Albury Park*, and Mr Bailey, who took the second and third prizes respectively. The three bunches shown by the latter exhibitor were very fine in size and shape, but were evidently not quite ripe. Mr Bannerman was first for a single dish of *Black Prince*, with three good

bunches ; Mr O. Goldsmith was second, and Mr Sage, gardener to Earl Howe, Gopsall Hall, third. Mr W. Cole, gardener to J. S. Budgett, Esq., Ealing Park, was first in the class for a single dish of any other kind, with Buckland Sweetwater ; Mr Bannerman was second, with excellent examples of Grizzly Frontignan ; and Mr Douglas third, with Buckland Sweetwater.

In the class for two dishes each of Peaches and Nectarines, distinct kinds, Mr Miller of Combe Abbey, and Mr Jack, gardener to the Duke of Cleveland, Battle Abbey, were equal first, the latter having well-coloured Elruge and Violette Hâtive Nectarines, and Royal George and Bellegarde Peaches, some of the latter weighing 11 ounces ; the former showed Elruge and Oldenburg Nectarines, and Grosse Miguonne and Royal George Peaches, in very fine condition. The second prize was awarded to similar kinds exhibited by Mr G. Masters, gardener to Earl Macclesfield, Tetsworth.

Of Cherries the best black kinds were Black Circassian, from Mr Turner ; Tartarian, from Mr Hill, gardener, Poles, Ware, Herts ; and May Duke, from Mr J. Budd, gardener to H. D. Barclay, Esq., Eastwick Park. Mr Hill was first for Whites, Mr J. Hepper, and Mr W. Dobson, gardener to C. H. Mills, Esq., M.P., Sevenoaks, also contributed nice dishes.

For four varieties of Strawberries the first prize was taken by Mr J. Douglas, who had very fine fruit of Sir Harry, President, Premier, and La Constante. Amongst miscellaneous subjects exhibited were four very nice Queen Pines from Mr J. Hepper ; three good bunches of a handsome-looking Black Grape, named Black Mammoth, from Mr Henderson, Cole Orton, were greatly admired. It was said to be a seedling sent to this country from Australia by the late Mr Wood of Nottingham. The bunches were nicely finished, berries large and oval, somewhat resembling the Black Morocco, though perhaps longer, and not quite so bluntly ended as that variety. Messrs Standish & Co. exhibited the Royal Ascot Grape growing in pots, trained on the umbrella fashion, averaging about six bunches each. Mr B. S. Williams had a fine brace of Holloway Rival Cucumbers, and Mr Turner three fine fruits of the new sort named Blue Gown.

ROYAL HORTICULTURAL SOCIETY'S GREAT PROVINCIAL SHOW AT MANCHESTER, July 19th.—On another page will be found some general remarks relative to this exhibition. Here it will suffice to indicate some of the leading prizes, and the subjects staged in competition for them. As usual, there was the great circular tent, with its central stage, having as its occupants the two collections of twenty foliated and flowering plants. Mr Baines, gardener to H. L. Nicholls, Esq., Bowden, was first—some way ahead of his opponent, Mr W. E. Dixon, Norwood Nursery, Beverley. Mr Baines had a grand mass of *Sarracenia purpurea*, a large and charmingly-flowered *Darwinia* (*Hederonia*) *tulipifera*, a very fine and well-furnished specimen of *Erica Fairrieana*, about 4 feet through ; a large and well-coloured *Alocasia metallica* ; *Franciscea confertiflora*, a fair specimen, nicely flowered, but pale in colour ; a large and finely-bloomed *Bougainvillea glabra*, admirable examples of *Ixora coccinea*, and *Erica obbata* ; a good specimen, well coloured, of *Croton variegatum*, a fairly bloomed *Allamanda cathartica*, and a magnificent mass of *Gleichenia speluncæ* ; Mr W. E. Dixon, Norwood Nursery, Beverley, showed an admirably grown and flowered *Kalosanthes Madame Celeste* Winans, a good specimen of *Erica jubata*, a nicely-flowered *Clematis Jackmani*, a large well-grown and bloomed *Oncidium pulvinatum* ; *Aphelaxis macrantha purpurea* in good condition ; and *Dasylyrion glaucum*, a well-furnished specimen ; the rest were very moderate.

The only collection staged for the "Florist and Pomologist" prizes came from Messrs Bell & Thorpe, Hallard Hall Nursery, Stretford Road, Manchester, who had *Achimenes* Carl Walforth, a very fair specimen; *Petunia* Miss Earle, a pretty rose-coloured variety; *Plumbago capensis*, and a medium-sized but handsome plant of *Lantana mutabilis*. In the class for nine stove and greenhouse plants, Heaths included, Messrs E. Cole & Sons of the Withington Nurseries, near Manchester, came first, with a very fine, large, and healthy specimen of *Allamanda nobilis*, a splendid specimen of *Kalosanthes Madame Celeste* Winans, a very good *Erica Parmentieriana rosea*, and a similarly good specimen of *Allamanda cathartica*, &c. Mr J. Bolton, gardener to W. W. Worswick, Esq., Birstal Hall, Leicester, came second, with, amongst others, a beautifully grown and flowered *Clerodendron fallax*, and a small but admirably-bloomed *Rhynchospermum jasminoides*, good examples of *Vinca oculata* and *alba*, and a fine specimen of *Pentas carnea*, &c. Mr W. E. Dixon was third, showing another good specimen of *Oncidium pulvinatum*, and an exceedingly fine *Kalosanthes*, Louis Napoléon Bonaparte, and some good *Ericas*. Mr B. S. Williams was first in the nurserymen's class for nine fine foliaged plants with a remarkably fine group, consisting of *Cordyline indivisa*, *Croton variegatum* and *pictum*, *Cycas revoluta*, *Pandanus ornatus*, *Dasyliroton acrotrichum*, &c., all very fine specimens; Messrs Felton & Sons, Birmingham, were second, with, amongst others, a large specimen of *Sanchezia nobilis*, not sufficiently variegated, a large and very good *Alocasia metallica*, *Pandanus utilis* Feltoni, and some very fair examples of *Crotons*, &c.; and Mr John Shaw was third with a collection of smaller plants, containing a small but most beautifully furnished *Agave filifera*, a good *Dracæna Cooperi*, *Pandanus ornatus*, and a very handsome *Yucca aloifolia*, &c. Mr J. Bolton was first in the amateurs' class for nine with a remarkably handsome *Seaforthia elegans*, and a well-grown and finely-coloured *Cissus discolor*, *Lycopodium cæsum arboreum*—a beautiful pyramid, about 6 feet in height—and a large and good *Croton angustifolium*, &c. The first prize, offered by the city of Manchester, went to Mr W. Cardwell, gardener to T. Hobson, Esq., Pownhall Hall, Cheshire, who had a very fine group, consisting of admirably grown examples of *Erica Fairrieana* and *E. ampullacea major*, *Ixora coccinea* in fine condition, fine specimens of *Croton angustifolium* and *variegatum*, a very good *Alocasia Lowii*, and *Allamanda cathartica*, in first-rate order, &c. Mr W. E. Dixon was second with a good bush of *Croton angustifolium*, *Phænocoma prolifera Barnesii*, a very fair specimen; *Ixora amboynensis* and *alba*, *Vanda suavis*, a tall specimen, beautifully furnished with healthy leaves to the top of the pot, and having two nice spikes of bloom; and a finely-flowered *Erica Parmentieriana rosea*, &c. Mr John Shaw was third with a very nice collection, in which were several fine *Yuccas*, a grand bush of *Croton variegatum*, a good healthy specimen of *Allamanda Hendersoni*, nicely flowered; a large and handsome *Rhopala corcovadense*, and *Phormium tenax variegatum*, in good condition. Messrs Cole & Sons took the prize offered by H. L. Micholls, Esq., for six miscellaneous plants, the collection to comprise three fine-foliaged and three blooming plants, including two *Ixoras*. In this collection were *Ixora Colei*, white, with good large trusses, and *coccinea*, *Erica Paxtoni*, a well-grown specimen, about 3 feet through, a mass of bloom; splendid specimens of *Croton variegatum* and *angustifolium*, and a beautiful *Yucca aloifolia variegata*. Mr Baines, the donor's own gardener, also competed with a fine group. In another class for eight the first prize was taken by Mr J. Briery, gardener to T. Kendal, Esq., Cheadle, with a very good *Erica venosa*, and a wonderfully fine specimen of *Allamanda Hendersoni*, an excellent *Croton magnificum*, and *Bougainvillea glabra*, &c.—the

latter, however, was only second-rate ; Mr W. Cardwell was second ; Mr Brierly was also first for the prize offered by Edward Brooke, Esq., for ten, with fine specimens of *Erica Austiniana* and *Candolleana*, a fine specimen of *Theophrasta imperialis*, and admirable examples of *Croton variegatum* and *Yucca aloifolia variegata*, &c. Mr J. Stevenson, Lark Hill, Timperley, came second, showing in his collection a remarkably fine specimen of *Alocasia Jenningsii*, a very good *Pleroma elegans*, and a small plant, though covered with blooms, of *Dipladenia crassinoda*, and *Sanchezia nobilis*, a fine specimen and well marked. Mr W. Cardwell took the prize offered by Messrs Cole & Sons for six Cape Heaths with a group of nicely-flowered medium-sized specimens. The first prize in the class for *Dracænas* or *Cordylines* was taken by Mr B. S. Williams with six handsome specimens, including *Dracæna Veitchii*, *cannæfolia*, *lineata*, *umbraculifera*, *atrosanguinea*, &c. Mr J. Shaw was second, and Messrs G. & W. Yates third, with smaller examples, though in good condition. Palms were not numerous, and the plants shown small. Ferns were plentiful, though there was a marked absence of Tree Ferns ; while of the usual Exotic Ferns the local amateur growers beat the nurserymen hollow ; while the lot staged by Mr B. S. Williams were a long way ahead of those staged in competition with them. Lycopods were represented by the usual kinds. Orchids were not numerous, but a few good specimens were shown, such as *Miltonia spectabilis*, with eighteen finely-expanded and beautifully-marked flowers ; *Ærides odoratum*, with twelve very fine spikes ; *Phalænopsis grandiflora*, with remarkably fine flowers ; *Cypripedium superbius*, with very fine blooms ; *Saccolabium Blumei majus*, with a finely-expanded spike about 18 inches long ; *S. præmorsum*, *Ærides Lobbii*, *A. quinquevulnera*, *Odontoglossum Alexandræ*, *O. Bluntei*, &c. &c.

In regard to the florists' flowers, there was a marked falling off in quality as compared with the two previous exhibitions in the provinces. The first of the special prizes for eight Fuchsias was taken by Mr R. Fleming, Sandkeys, Liverpool, who had finely grown and flowered pyramidal plants, but spoiled because they had been tied out to so severely formal a shape. The sorts were *Tristram Shandy*, *Fair Oriana*, *Rose of Castille*, *Reine Cornelisson*, *La Crinoline*, *Reine Blanche*, *Mrs Marshall*, and *Turban*. The others were not worth notice. Strange to say, the class for three Standard Fuchsias did not fill. Large-flowering *Pelargoniums* were quite poor—poorly grown and bad in quality, with the exception of the varieties staged by Mr C. Rylance. The Fancies were better grown, and consisted of *Acme*, *Evening Star*, *Ellen Beck*, *Musjid*, *Celestial*, *Undine*, *Illuminator*, *Sweet Lucy*, *Godfrey*, *Turner*, and *Duchess of Buccleuch*. Zonal and Nosegay *Pelargoniums* made a very good display ; of the former, the best were *Mons. G. Nacet*, *Mrs William Paul*, *Excellent*, *Eugene Mezard*, *Softness*, *Clipper*, *Tintoret*, *St Fiacre*, *Miss Martin*, and *Madame Vaucher* ; of Nosegays, *Amy Hogg*, *Profusion*, *Le Grande*, *Baron Ricasoli*, *Indian Yellow*, *Startler*, *Black Dwarf*, and *Rose Rendatler*.

Messrs G. & W. Yates's special prize of five guineas for the best six tricolor *Pelargoniums* was taken by Mr M. Torkington, Wilmslow, with *Sophie Dumaresque*, *Mrs Dix*, *Florence*, *Countess of Craven*, *Queen's Favourite*, and *Princesse Clotilde*, the first four belonging to the golden-edged, the latter to the silver-edged section ; second, Mr J. Smith, gardener to G. H. K. Balstone, Esq., with *Edwinia Fitzpatrick*, *Sophia Cusack*, very good ; *Miss Watson*, and *Mrs Dix*, golden-edged ; and *Beauty of Guestwick*, and *Italia Unita*, silver-edged. These were the largest plants, but, with the exception of *Sophia Cusack*, by no means so well coloured. In the open class for six kinds, Messrs F. & A. Smith, Dulwich,

were first with capital plants of Lady Cullum, Princess Teck, finely coloured, and Earl of Shaftesbury, golden-edged; and Impératrice Eugénie, Miss B. Coutts, and Banshee, silver-edged. Mr J. Tomkins, Sparkhill, was second with Lady Cullum, Sophia Cusack, Sophie Dumaresque, Beauty, and Miss Tomkins, golden-edged; and Italia Unita, silver-edged. The open class for six variegated Pelargoniums brought together almost all the forms of variegated Pelargoniums, using it in its broadest sense. Mr Tomkins was placed first with Burning Bush, Flower of Spring, Silver Star, Stella variegata, Oriana improved, and Miss Kingsbury. Second, Messrs G. & W. Yates, with Sophie Dumaresque, Lady Cullum, Sophia Cusack, Countess of Craven, Florence, finely coloured, and Italia Unita. The class for three double-flowering varieties was so well filled (there being six competing groups) that it may be taken as suggestive of the double varieties coming to play an important part in our exhibitions. Messrs Carter & Co. of London were first with three nice medium-sized plants of Madame Lemoine, Wilhelm Pfitzer, and Gloire de Nancy. Second, Messrs J. Standish, Ascot, with Marie Lemoine, Madame Lemoine, and Triomphe. Third, Mr George Edward, York, with Capitaine l'Hermite, Gloire de Nancy, and Triomphe de Thumèsil.

The groups of hardy Conifers competing for the special prize silver cup were objects of considerable interest, and were effectively grouped in the exhibition-field, in the immediate neighbourhood of the great circular tent. Messrs Barron & Son, of Elvaston Nurseries, were first with a fine lot, consisting of Biota elegans, Sciadopitys verticillata, several handsome forms of Retinospora, Cryptomeria elegans, Araucaria imbricata, Arthrotaxus taxifolia, Picea magnifica glauca and P. nobilis, Larix Kämpferi, Abies Hookeriana, A. Douglasii, and others; Thujaopsis dolabrata, &c. Second, Mr John Shaw, Manchester. Messrs R. & W. Yates, and J. Standish & Co., also exhibited, while Messrs Barron & Son, J. Shaw, and Standish & Co., also contributed groups of the rarer coniferous plants, including some new forms of great beauty. Messrs Barron & Son were first with six Hollies in competition for the special prizes given by the proprietors of the *Manchester Guardian*. The kinds were Ilex aquifolia aurea major, aurea vestita, nana aurea, Donningtoniensis, elegantissima, and medio-picto alba. Mr Shaw was awarded the *Manchester Courier* special prize for ten deciduous trees or shrubs, having Betula alba pendula, Quercus cerris variegata, Quercus pedunculata nigra, Deutzia crenata fl.-pl., Ulmus campestris aurea, Acer polymorphum dissectum, fol. var., Cornus mascula variegata, Quercus robur aurea, Quercus robur concordia, and Viburnum Lantana variegatum. Mr John Shaw was also first with a pair of standard Hollies, showing Ilex aquifolia nana aurea, also with a pair of Golden Yews, showing Taxus elegantissimus, and with a pair of pyramidal Box-trees having Boxus variegata; while Mr B. S. Williams, Holloway, was first with a pair of standard Bays.

Cut blooms of Carnations and Picotees were nearly as numerous as at Leicester last year, though one might have supposed that the Manchester district being to some extent the northern home of the Carnation and Picotee, these flowers would have been much more largely represented. In classes 89, with twenty-four Carnations, and 90, with twenty-four Picotees, Mr C. Turner, Slough, had grand flowers, and both in size and substance of the blooms, as well as in their fine colouring, so completely distanced the rival collections as to be without the pale of comparison. Of the former he had Flora's Garland, William Cowper, Rifleman, Dreadnought, Prince Albert, Premier, Samuel Moreton, Anthony Dennis, Florence Nightingale, Nymph, Sportsman, Squire Trow, Princess Royal, Lord Raneliffe, King John, Duke of York, Captain Stott, Eccentric Jack, Brutus, Merrimac,

James Merryweather, Annihilator, Touchstone, and John Bayley. Mr George Edward, York, was second, the best flowers being John Reet, Vivid, Earl of Stamford, Mrs Edward, Beauty, Napoleon, True Blue, Miss Lucy, Brilliant, Delicata, and Lord Ranciffe. Of Picotees, Mr Turner had very fine flowers of Admiration, a very beautiful new bright purple heavy-edged flower of fine quality ; Lord Nelson, Mrs Fisher, Prince of Wales, Amy Robsart, Green's Queen, Charmer, Lucy, Col. Clerk, Bridesmaid, Mrs Norman, Miss Drake, Lord Valentia, Ganymede, Miss Wood, Countess, Gipsy Queen, Picco, Miss Turner, Rev. H. Matthews, Forester, Flower of the Day, a heavy rose-edged seedling in the way of Green's Queen, but darker, and another light-edged seedling-flower. Mr George Edward was second with some flowers of inferior quality. In the classes for amateur growers there was no competition. The first of the special prizes offered by Mr Broome for twelve Carnations and Picotees, was also taken by Mr Turner, who had of the former Captain Stott, King John, Dreadnought, Sportsman, Eccentric Jack, and Favourite ; and of Picotees, Miss Turner, a pretty new medium light rose-edged flower ; Miss Drake, Lord Valentia, Admiration, Mrs Norman, and Miss Wood. Second, Mr George Edward. In the class for twelve Pinks, Mr J. Mellor, Stamford Street, Ashton-under-Lyne, produced a stand of true northern flowers, each flower having been reduced to two circles of petals, which were very pure and exquisitely laced, but the flowers appear very unnatural notwithstanding. The varieties were John Ball, Emily, Robin Hood, Jane, Emma, Auricula, Earl Stamford, Defiance, Bertha, Champion, Arlette, and Unity. Two other collections were staged, but the judges withheld any awards to them.

With cut blooms of Verbenas, Mr C. J. Perry, Castle Bromwich, and Mr C. Turner, were found in competition. The latter certainly had the biggest bunches, but the superb quality of Mr Perry's flowers gained the first prize. They were : Shakespeare, Model, Géant des Batailles, Edwin Day, rich bright orange scarlet ; Annie, Lord Leigh, Butterfly, a beautiful new variety, blush, with crimson centre ; Joseph Sanders, rich crimson, with lemon eye ; Mrs Reynolds Hole, and Rising Sun, glowing salmon red, with small white eye surrounded by a rich deep maroon ring, one of the most striking varieties Mr Perry has ever raised. Differing from these, in Mr Turner's stand, who was awarded the second prize, were King of Verbenas, Leah, Nemesis, J. C. Ward, Samuel Moreton, John Wilson, Foxhunter, and Chastity.

Cut Roses were a grand feature, and made a charming display along the south side of the fruit tent. In the nurserymen's class for forty-eight varieties, Mr J. Cranston, Hereford, was first with some splendid blooms of the following Hybrid Perpetuals :—Alfred Colomb, Alice Dureau, Antoine Ducher, Beauty of Waltham, Caroline de Sansal, Charles Lefebvre, Claude Millon, Comte de Nanteuil, Comtesse de Chabillant, Dr Andry, Duc de Rohan, Duc de Wellington, Duchesse de Caylus, Felix Genero, Fisher Holmes, Horace Vernet, Joseph Fiala, Josephine de Beauharnais, La Duchesse de Morny, La France, Lælia, Laurent Descourt, Leopold I., Lord Herbert, Lord Macaulay, Madame la Baronne de Rothschild, Madame Boutin, Madame Charles Crapelet, Madame Charles Verdier, Madame Charles Wood, Madame Furtado, Madame Victor Verdier, Madame William Paul, Mdlle. Marguerite Dombrain, Maréchal Vaillant, Marguerite de St Amand, Maurice Bernardin, Paul Verdier, Pierre Notting, Prince Camille de Rohan, Prince Henri des Pays Bas, Reine du Midi, Sophie Coquerelle, and Xavier Olibo ; and the following Tea Roses : Gloire de Dijon, La Boule d'Or, Maréchal Niel, and Madame Margottin. Second, Mr C. Turner, having fine examples of Madame C. Joigneaux, Gabriel de Peyronny, Madame George Paul, King's Acre, Marie Baumann, La

Duchesse de Morny, Prince of Wales, Beauty of Waltham, Mdle. Annie Wood, Lord Herbert, Charles Rouillard, Alfred Colomb, Madame Vidot, and Prince Camille de Rohan, Baron Gonella, Hybrid Bourbon; and the following Tea Roses: Madame Willermoz and Alba Rosea. Third, Messrs S. Perkins & Son, Coventry.

In the amateurs' class for the same number, the Rev. S. Reynolds Hole, Caunton Manor, Newark, was first with a very fine lot of flowers, consisting of Maréchal Vaillant, Comte de Nanteuil, Antoine Ducher, Miss Ingram, Madame Victor Verdier, Madame Furtado, Black Prince, Madame Caillat, Gloire de Santenay, Mons. Noman, Mdle. A. Wood, Maréchal Niel, Dr Andry, Madame Vidot, Sénateur Vaisse, Caroline de Sansal, Vicomte Vigier, Gloire de Dijon, Maurice Bernardin, Madame C. Joigneaux, Lord Raglan, Princess Mary of Cambridge, Abbé Berleze, Centifolia rosea, Leopold I., Charles Rouillard, Laurent Descourt, Madame Bravy, Charles Wood, Exposition de Brie, Madame Charles Crapelet, Comtesse de Chabillant, Madame Hector Jacquin, Charles Margottin, Alfred Colomb, Madame Rivers, John Hopper, Marguerite de St Amand, Prince Henri des Pays Bas, Lord Herbert, Marie Baumann, Auguste Mie, and others which had lost their labels. Mr J. C. Perry, Castle Bromwich, was second with fine flowers of the following, among others, Sénateur Vaisse, Horace Vernet, Alpaide de Rotalier, Baronne de Noirmont, Leopold I., Lord Clyde, Auguste Mie, Pierre Notting, Madame Rival, Xavier Olibo, Charles Lefebvre, Beauty of Waltham, Gloire de Vitry, Baron Gonella, and La Reine. Third, Mr Draycott, gardener to T. T. Paget, Esq., Humberstone, near Leicester. The Rev. Mr Hole was also first in Classes 98, 99, and 100, in the former with twenty-four varieties—viz., Black Prince, Madame Furtado, Maréchal Vaillant, La Tour de Crouy, Leopold I., Anna de Diesbach, Charles Lefebvre, John Hopper, Duc de Rohan, Marguerite de St Amand, Mdle. Marie Rady, Maréchal Niel, Lord Raglan, Madame Knorr, Alfred Colomb, Charles Rouillard, Prince Henri des Pays Bas, Triomphe de Rennes, Vicomte Vigier, Miss Ingram, Madame Clemence Joigneaux, Pierre Notting, Monsieur Noman, and Comte de Nanteuil. Second, Mr C. J. Perry, the best flowers being La France, Alice Dureau, Jules Margottin, Madame Fillion, Semiramis, Comte de Nanteuil, and Francois Lacharme. The twelve shown by Mr Hole contained Black Prince, Maréchal Niel, Maréchal Vaillant, Madame Bravy, Lord Herbert, Comtesse de Chabillant, Charles Lefebvre, Madame Furtado, Leopold I., Madame Vidot, Vicomte Vigier, and Monsieur Noman. Mr C. J. Perry was second, and had good blooms of Beauty of Waltham, Maréchal Niel, Horace Vernet, and Général Jacqueminot. The Rev. Mr Hole's six consisted of Charles Lefebvre, Maréchal Niel, Alfred Colomb, Maréchal Vaillant, La Duchesse de Morny, and Dr Andry.

Class 101 was for twelve new Roses sent out in 1866, 1867, or 1868. Mr J. Cranston, Hereford, was first with good examples of Monsieur Noman, President Willermoz, Horace Vernet, Napoleon I., La France, and Duchesse d'Aoste, Hybrid Perpetuals; and the following Bourbon and Tea Roses: Miss Ingram, Madame Margottin, Monsieur Furtado, Madame Marie, Cirodde, President Willermoz, Souvenir de Mons. Boll, La France, Duchesse d'Aoste, Madame La Baronne de Rothschild, Paul Verdier, Horace Vernet, very fine; Impératrice Charlotte, Antoine Ducher, and Mrs Ward, all Hybrid Perpetuals, and Jean Sisley, a fine new Tea Rose. Second, Mr C. Turner, with Comtesse de Jaucourt, Mrs John Berners, President Willermoz, Monsieur Noman, Horace Vernet, Napoleon I., La France, and Duchesse d'Aoste, Hybrid Perpetuals; Miss Ingram, Hybrid Bourbon; and Madame Margottin, Monsieur Furtado, and Clotilde, Tea-scented varieties. Third, Messrs S. Perkins & Son.

The first of the special prizes given by Edward Joynson, Esq., for eighteen cut Roses (amateurs), was also taken by the Rev. S. R. Hole, who had fine blooms of Victor Verdier, Maréchal Vaillant, Triomphe de Rennes, Prince Camille de Rohan, Comtesse de Chabrillant, Black Prince, Devoniansis, Leopold I., Charles Rouillard, Madame Victor Verdier, Maréchal Niel, Dr Andry, Madame Thérèse Levet, Madame C. Joigneaux, Louise Magnan, Madame Hector Jacquin, Duc de Rohan, Monsieur de Montigny, &c. Second, Mr Thomas Draycott. Third, Mr C. J. Perry.

The first of the special prizes, given by H. Birley, Esq., M.P., for eight varieties of cut flowers, was taken by Messrs E. Cole & Sons, who had *Ixora coccinea*, *I. Colei*, *Kalosanthes puniceus*, *Eucharis amazonica*, *Allamanda grandiflora*, *Erica venosa*, *Dipladenia crassinoda*, and *D. amabilis*. To fill out the stand, the exhibitors exhibited further four other kinds of *Ixoras*—viz., *javanica*, *amboynensis*, *Alexandra*, resembling an orange form of *I. amboynensis*, spotted with crimson, and *salicifolia*; Messrs G. & W. Yates were second with an *Amaryllis*, *Crinum giganteum*, *Cattleya Loddegessii*, *Gardenia Fortunei*, and others, badly staged in a common deal box; Mr S. Barlow, Chadderton, who had arranged his group in an ornamental flower-pot, was third.

We have just space to remark of the fruit that it was on a par with the July exhibitions of the Royal Botanic Society at the Regent's Park. In Grapes the Black Hamburgs were in many cases excellent. The White Grapes, especially the Muscats, were unripe. Pines were pretty numerous, but nothing more can be said of them, for in quality they were like what we generally see on such occasions. Strawberries were numerous and fine. The collections of vegetables were very abundant, and of fine quality and cultivation. At a considerable sacrifice of space we give the list of prizes, from which our readers will learn who had the most meritorious productions on the occasion.

WE ANNEX A FULL LIST OF THE PRIZES.

Class 1—For the best and most effective Group of 20 Plants (Prizes offered by the Royal Horticultural Society and Manchester Botanical and Horticultural Society)—1. Mr T. Baines, gardener to H. L. Micholls, Esq., Summerfield, Bowden, Cheshire, £25; 2. Mr W. E. Dixon, Norwood Nursery, Beverley, Yorkshire, £15.

Class 2—For the best Collection of Fruits and Vegetables (Prize offered by the Proprietors of *Gardeners' Chronicle*)—1. Mr J. Pottle, gardener to R. D. Colvin, Esq., Bealing's Grove, Woodbridge, Suffolk, £21.

Class 3—For the 2 best Desserts, consisting of not less than 7 kinds of Fruits of 1869 (Prizes offered by the Proprietors of the *Journal of Horticulture*)—1. Mr W. Carmichael, gardener to H.R.H. the Prince of Wales, Sandringham, £10, 10s.; equal, Mr J. Wallis, gardener to J. Dixon, Esq., Astle Park, Congleton, £10, 10s.

Class 4—For the best 4 Softwood Greenhouse Plants (Prizes offered by the

Proprietors of *Florist and Pomologist*)—

1. Messrs Bell & Thorpe, Nurserymen, Stratford-on-Avon, 6 vols., forming the second series of the *Florist and Pomologist*.

Class 5—For 10 Dishes of Fruit, 8 distinct varieties (Prizes offered by the Mayor of Manchester and Mr Peter Bailey)—1. Mr G. S. Miles, gardener to Lord Carrington, Wycombe Abbey, £10, 10s.; 2. Mr W. S. Dobson, 19 St James's Street, London, £5, 5s.

Class 6—For 12 Miscellaneous Plants (Prizes offered by the City of Manchester)—1. Mr W. Cardwell, gardener to T. Hobson, Esq., Wilmslow, Cheshire, £12, 12s.; 2. Mr W. E. Dixon, nurseryman, Beverley, £8, 8s.

Class 7—For 6 Dishes of Fruit, distinct (Prizes offered by Lady Watts)—1. Mr J. Simpson, gardener to Lord Wharncliffe, Wortley Hall, Sheffield, £6, 6s.; 2. Mr J. Wallis, £4, 4s.

Class 8—For 10 Orchids (Prizes offered

by Mrs Mendel and W. C. Jones, Esq.)—1. Mr W. Archer, gardener to A. Turner, Esq., Leicester, £10, 10s.; 2. Mr W. Swan, gardener to T. Jones, Esq., Whalley Range, Manchester.

Class 9—For 10 Fine-Foliaged or Variegated Plants (Prize offered by Horatio L. Micholls, Esq.)—1. Mr J. Stevenson, Timperley, Cheshire, £10, 10s.

Class 10—For 10 Miscellaneous Plants—5 blooming and 5 fine-foliaged (Prizes offered by Edward Brooke, Esq., and L. Haumer, Esq.)—1. Mr J. Brierley, gardener to T. Kendal, Esq., Cheadle, £10, 10s.; 2. Mr J. Stevenson, Timperley, £5, 5s.

Class 11—For 20 Hardy Conifers, distinct (Prizes offered by Thomas Ashton, Esq., and H. K. Belstone, Esq.)—1. Messrs W. Barron & Son, Elvaston Nurseries, Derby, £10, 10s.; 2. Mr J. Shaw, £5, 5s.

Class 12—For 12 Evergreens, distinct (Prizes offered by Edward Nathan, Esq., and Thomas Jones, Esq.)—1. Messrs W. Barron & Son, £10, 10s.; 2. Mr J. Shaw, £5, 5s.

Class 13—For 6 Hollies, distinct (Prizes offered by the Proprietors of *Manchester Guardian*)—1. Messrs W. Barron & Son, £6, 6s.; 2. Mr J. Shaw, £4, 4s.

Class 14—For 8 Miscellaneous Plants—4 blooming and 4 fine-foliaged (Prizes offered by Mr J. Stevenson)—1. Mr J. Brierley, £6, 6s.; 2. Mr W. Cardwell, £4, 4s.

Class 15—For 8 Fuchsias, distinct (Prizes offered by John Rylands, Esq., and Mr John Shaw)—1. Mr R. Fleming, Sandheys, Liverpool, £5, 5s.; 2. Mr G. Edwards, King Street, York, £3, 3s.

Class 16—For 20 British Ferns, distinct (amateurs) (Prizes offered by Mr Henry Crowe, and Messrs Barber Brothers)—1. E. J. Lowe, Esq., F.R.S., Beeston, near Nottingham, £5, 5s.; 2. J. E. Mapplebeck, Esq., Moseley, near Birmingham.

Class 17—For 4 Exotic Ferns, distinct (Prizes offered by Mrs Samuel Taylor and Messrs Barber Brothers)—1. Mr W. Cardwell, £5, 5s.

Class 18—For 6 Orchids, distinct (amateurs) (Prizes offered by Messrs James Brooke & Co., and William South-

ern, Esq.)—1. Mr E. Mitchell, gardener to Dr Ainsworth, Broughton, £5, 5s.; 2. Mr Swan, gardener to T. Jones, Esq., Whalley Range, £2, 12s. 6d.

Class 19—For 6 Variegated Zonal (Tricolor) Pelargoniums, distinct (amateurs) (Prizes offered by Messrs G. & W. Yates and William Southern, Esq.)—1. Mr M. Torkington, Wilmslow, £5, 5s.; 2. Mr Smith, gardener to H. K. Balstone, Esq., Altrincham, £2, 12s. 6d.

Class 20—For 6 Cape Heaths, distinct (Prizes offered by Messrs E. Cole & Sons, and Messrs Johnson & Fildes)—1. Mr W. Cardwell, £5, 5s.

Class 21—For 6 Lillium Auratum (Prizes offered by Sir James Watts)—1. Messrs G. & W. Yates, Manchester, £3, 3s.; 2. Mr E. Mitchell, £2, 2s.

Class 22—For 6 Bunches of Grapes, Black and White (Prizes offered by Mr Thomas Baines, and Messrs Johnson & Fildes)—1. Mr W. Freeman, gardener to the Earl of Derby, K.G., Knowsley, Prescott, £5, 5s.; 2. Mr R. Janson, gardener to T. Statter, Esq., Stand, near Manchester, £2, 12s. 6d.

Class 23—For 6 Zonal Pelargoniums (Prizes offered by Thomas Jones, Esq.)—1. Mr E. Bridge, gardener to S. Jorrott, Esq., Greenhill, Liverpool, £3, 3s.; 2. Mr J. Woollam, gardener to Major Blundeall, Crosby Hall, Liverpool, £2, 2s.

Class 24—For 1 dish of Peaches and 1 dish of Nectarines (Prizes offered by Charles Durham, Esq.)—1. Mr W. Tillery, gardener to Duke of Portland, Welbeck Abbey, Worksop, £3, 3s.; 2. Mr J. Wallis, £2, 2s.

Class 25—For 6 Pines (Prizes offered by Messrs Armitage & Rigby, and Abin Haworth, Esq.)—1. Mr R. H. Smith, gardener to H. Walker, Esq., Calderstone, near Liverpool, £5, 5s.; 2. Mr G. Ward, gardener to T. N. Miller, Esq., Bishop Stortford, £3, 3s.; 3. Mr Simpson, £2, 2s.

Class 26—For 12 Carnations and Pico-tees, 6 of each (Prizes offered by—Broome, Esq.)—1. Mr C. Turner, Royal Nurseries, Slough, £2, 10s.; 2. Mr G. Edwards, King Street, York, £1, 10s.

Class 27—For 10 Deciduous Trees or Shrubs, in or out of Bloom (Prize offered by the Proprietors of *Manchester Courier*)—1. Mr S. Shaw, £2, 12s. 6d.

Class 28—For 6 New and Rare Plants (Prizes offered by Messrs Thomas Agnew & Son, and Proprietors of *Manchester Examiner and Times*)—1. Messrs J. Veitch & Sons, Royal Exotic Nursery, Chelsea, London. S.W., £5.

Class 29—For 1 pair of Standard Hollies (Prizes offered by Mr William Grimshaw)—1. Mr J. Shaw, £2.

Class 30—For 6 Miscellaneous Plants, 3 fine-foliaged and 3 blooming, including 2 *Ixoras* (Prize offered by Henry L. Micholls, Esq.)—1. Mrs E. Cole & Sons, Nurserymen, Withington, Manchester, £5, 5s.

Class 31—For 1 pair Golden Yews (Prizes offered by Mr William Grimshaw, and A. B. Woodcock, Esq.)—1. Messrs W. Barron & Son, £2; 2. Mr J. Shaw, £1.

Class 32—For Vase Epergne or Centre Piece for Table (Prize offered by William Wilson, Esq., and Mr John Shaw)—1. Mr R. S. Yates, Sale, Cheshire, £3; 2. Mr G. Ollier, gardener to Mrs Wood, Rowdon, £2; 3. Mr W. S. Dobson, £1.

Class 33—For 1 pair Standard Bay Trees (Prizes offered by Benjamin Whitworth, Esq.)—1. Mr B. S. Williams, £2; 2. Mr W. MacMillan, £1.

Class 34—For 2 Bouquets for the Hand, one for a Bride, one for a Ball (Prizes offered by Mrs Abel Heywood)—1. Mr G. Ollier, £2, 2s.; 2. Mr J. Bolton, gardener to W. W. Warswick, Esq., Leicestershire, £1, 11s. 6d.

Class 35—For a pair Pyramidal Box Trees (Prizes offered by Henry Stubbs, Esq.)—1. Mr J. Shaw, £2, 2s.; Mr T. Stafford, £1, 1s.

Class 36—For 2 Bouquets for the Hand, one for a Bride, the other for a Ball (Prizes offered by Edward Behrens, Esq.)—1. Mr W. H. Turner, West Derby, Liverpool, £2, 2s.; 2. Mr W. Turner, St John's Market, Liverpool, £1, 11s. 6d.

Class 37—For 18 Cut Roses, trusses, distinct (amateurs) (Prizes offered by Edward Joynson, Esq.)—1. Rev. S. R. Hole, Cauntton Manor, Newark, Notts, £2, 2s.; 2. Mr T. Draycott, gardener to T. T. Paget, Esq., Leicester, £1, 11s. 6d.

Class 38—For 12 Dishes of Vegetables, distinct (Prizes offered by Sir James Watts, and Messrs Thomas Green & Son)

—1. Mr W. Lumsden, Bloxholm Hall, Sleaford, £5, 5s.; 2. Mr J. Smith, gardener to H. K. Balstone, Esq., Altrincham, £3, 3s.; 3. Mr J. Stevenson, £2, 2s.

Class 39—For 10 Dishes of Vegetables, distinct (Prizes offered by Arthur H. Heywood, Esq., and Proprietors of *Manchester Examiner and Times*, and Mr John Shaw)—1. Messrs T. Snowden & Sons, Thirsk, York, £4, 4s.; 2. Mr T. B. Bailey, gardener to T. T. Drake, Esq., Amer-sham, £2, 12s. 6d.; 3. Mr W. Cragg, Tim-perley, Cheshire, £1, 1s.

Class 40—For 8: Dishes of Vegetables, distinct (Prizes offered by John Radcliff, Esq., and Benjamin Whitworth, Esq.)—1. Mr C. Frisby, gardener to H. Chaplin, Esq., Sleaford, £3, 3s.; 2. Mr J. Smith, Altrincham, Cheshire, £2, 2s.

Class 41—For 6 Dishes of Vegetables, distinct (Prizes offered by Proprietors of *Manchester Courier*, and Henry Stubbs, Esq., and Benjamin Whitworth, Esq.)—1. Mr C. Frisby, £2, 12s. 6d.; 2. Mr J. Smith, gardener to H. K. Balstone, Esq., Altrincham, £2, 2s.

Class 42—For 4 Dishes of Vegetables, distinct (Prizes offered by J. Carlton, Esq., and Hugh Birley, Esq., M.P.)—1. Mr D. Lumsden, £2, 2s.; 2. Mr W. Brownhill, gardener, Sale, Cheshire, £1, 1s.

Class 43—For 2 Bunches of Black Hamburg Grapes (Prizes offered by Messrs W. G. Galloway & Co.)—1. Mr W. Woolley, gardener to W. Jackson, Esq., Birkenhead, £2, 2s.; 2. Mr W. Jones, gardener to S. K. Mainwaring, Esq., Ellesmere, £1, 10s.; 3. Mr W. Freeman, gardener to Earl of Derby, £1, 5s.

Class 44—For 1 Pine Apple, any Variety (Prizes offered by Richard Howarth, Esq., and Arthur H. Haywood, Esq.)—1. Mr G. Ward, £2, 2s.; 2. Mr H. Clarke, £1, 1s.

Class 45—For 8 Varieties of Cut Flowers (Prizes offered by Hugh Birley, Esq., M.P.)—1. Mrs E. Cole & Sons, 12s.; 2. Mr R. S. Yates, 9s.

Class 46—For 4 Palms (Prizes offered by the Council of Manchester Botanical and Horticultural Society)—1. Mr A. Williams, gardener to G. Brown, Esq., Fallowfield, £5; 2. Mr W. E. Dickson, £3; 3. Mr J. Shaw, Bowden, Cheshire, £2.

GENERAL PRIZE-LIST.

FLOWERS AND PLANTS.

Class 48—6 Stove or Greenhouse Plants, Heaths included, distinct (open)—1. Mrs E. Cole & Sons, £5; 2. Mr J. Bolton, £3; 3. Mr W. E. Dixon, £2.

Class 49—6 Stove or Greenhouse Plants, Heaths included, distinct (amateurs)—1. Mr J. Stevenson, £5; 2. Mr J. Bolton, £4.

Class 50—9 Fine-Foliaged or Variegated Plants, distinct (amateurs)—1. Mr J. Bolton, £7.

Class 51—9 Fine-Foliaged or Variegated Plants, distinct (nurserymen)—1. Mr B. S. Williams, Upper Holloway, London, £7; 2. Messrs Felton & Sons, Birmingham, £5; 3. Mr J. Shaw, £3; 4. Mr W. E. Dixon, £2.

Class 52—6 Fine-Foliaged or Variegated Plants, distinct (amateurs)—1. Mr G. Elkin, gardener to T. H. Birley, Esq., Manchester, £4; 2. Mr C. Phillips, gardener to A. H. Heywood, Esq., Manchester, £3; 3. Mr J. Woollam, £2.

Class 53—6 Exotic Orchids, distinct, in flower (amateurs)—1. Mr J. Orme, gardener to W. C. Bird, Esq., Manchester, £5; 2. Mr W. Swan, £4; 3. Mr E. Mitchell, £3; 4. Mr S. Allen, the Grange, Dedsbury, Manchester.

Class 54—6 Exotic Orchids, distinct, in flower (nurserymen)—1. Mr B. S. Williams, £5; 2. Mr W. E. Dixon, £3; 3. Mr J. Shaw, £2.

Class 55—6 Palms, not fewer than three kinds (open)—1. Mr J. Shaw, £5; 2. Messrs G. & W. Yates, £4; 3. Mr T. Stafford, Hyde, near Manchester, £3.

Class 56—6 Fuchsias, distinct, in flower, in 8-inch pots (amateurs)—2. Mr T. Gresty, gardener to R. Voss, Esq., Fallowfield, £3; 3. Mr J. Woollam, £2; 4. Mr J. Lowe, gardener to W. Bindley, Esq., Manchester, £1.

Class 59—6 Show Pelargoniums, distinct, in flower (open)—1. Mr E. Bridge, £5; 2. Mr C. Rylands, Aughton, near Ormskirk, £4; 3. Mr R. Fleming, Sandheys, Waterloo, Liverpool, £2.

Class 60—6 Fancy Pelargoniums, distinct, in flower (open)—1. Mr C. Rylance, £5; equal, Mr E. Bridge, £5; 2. Mr R. Fleming, £4.

Class 61—6 Zonal Pelargoniums, distinct, in flower, of any colour, excluding Variegated sorts (amateurs)—1. Mr E. Bridge, £5; 2. Mr R. Fleming, £4; 3. Mr J. Smith, £2.

Class 62—6 Zonal Pelargoniums, distinct, in flower, of any colour, excluding Variegated sorts (nurserymen)—1. Mr C. Rylance, £5; 2. Messrs Bell & Thorpe, Stratford-on-Avon, £4; 3. Messrs G. & W. Yates, £2.

Class 63—6 Nosegay Pelargoniums, in flower, distinct, of any colour (open)—1. Mr E. Bridge, £5; 2. Messrs Bell & Thorpe, £4; 3. Mr G. Edwards, £2.

Class 64—3 Double-Flowering Pelargoniums, distinct, in flower (open)—1. Messrs J. Carter & Co., Forest Hill, S.E., £3; 2. Mr J. Standish & Co., Ascot, £2; 3. Mr G. Edwards, £1.

Class 65—6 Variegated Pelargoniums, distinct (open)—1. Mr J. Tomkins, nurseryman, Birmingham, £3; 2. Messrs G. & W. Yates, £2; 3. Messrs Bell & Thorpe, £1.

Class 66—6 Variegated Zonal Pelargoniums, distinct (open)—1. Messrs F. & A. Smith, Dulwich, £3; 2. Mr J. Tomkins, £2; 3. Mr J. Smith, £1.

Class 70—3 Gloxinias, distinct, in flower (amateurs)—1. Mr J. Price, gardener to G. Taylor, Esq., Broughton, Manchester.

Class 74—6 Dracenas or Cordylines, distinct (open)—1. Mr B. S. Williams, £2; 2. Mr J. Shaw, £1, 10s.; 3. Messrs G. & W. Yates, £1.

Class 75—9 Exotic Ferns, distinct (nurserymen)—1. Mr B. S. Williams, £4; 2. Messrs G. & W. Yates, £3; 3. Mr T. Stafford, £2; 4. Messrs W. & J. Birkenhead, nurserymen, Sale, Cheshire.

Class 76—9 Exotic Ferns, distinct (amateurs)—1. Mr J. Bolton, £4; 2. Mr T. Baines, £3; 3. Mr C. Phillips, £2; E. J. Lowe, Esq., F.R.S., £1.

Class 77—12 British Ferns, distinct (open)—1. J. E. Mapplebeck, Esq., £3; 2. Mr C. Rylance, £2; 3. E. J. Lowe, Esq., F.R.S., £1; 4. Messrs A. Stansfield & Sons, nurserymen, Todmorden, 15s.

Class 78—A pair of Tree Ferns—1. Mr B. S. Williams, £1, 10s.; 2. Mr J. Shaw, £1.

Class 79—6 *Lycopodiums*, distinct (open)—1. Mr R. Fleming, £3; 2. Mr J. Elkin, £2; 3. Mr J. Price, £1; Mr C. Ryland, 10s.

Class 80—6 Double-flowered *Petunias*, distinct, in flower (open)—1. Messrs Bell & Thorpe, £2.

Class 81—6 Single-flowered *Petunias*, distinct, in flower (open)—1. Messrs Bell & Thorpe, £2; 2. Mr C. Ryland, £1.

Class 82—12 *Succulents*, distinct (open)—1. Mr T. Stafford, £2; 2. Mr J. Shaw, £1.

Class 85—6 *Phloxes*, distinct, in 12-inch pots (open)—1. Mr J. Walker, £2.

Class 89—24 *Carnations*, distinct, cut blooms (nurserymen)—1. Mr C. Turner, £2; 2. Mr G. Edwards, £1.

Class 90—24 *Picotees*, distinct, cut blooms (nurserymen)—1. Mr C. Turner, £2; 2. Mr G. Edwards, £1.

Class 93—12 *Pinks*, distinct, cut blooms (open)—1. Mr J. Mellor, 40 England St., Ashton-under-Lyne, 10s.

Class 94—12 *Zonal Pelargoniums*, distinct, cut flowers, in bunches of five trusses each (open)—1. Mr C. Phillips, £1; 2. Mr C. J. Perry, Castle Bromwich, Birmingham, 15s.; 3. Mr W. Cunningham, nurseryman, Burton-on-Trent, 10s.

Class 95—12 *Verbenas*, distinct, cut flowers, in bunches of 5 trusses each (open)—1. Mr C. J. Perry, £1; 2. Mr C. Turner, 15s.

Class 96—48 Cut *Roses*, distinct, 1 truss each (nurserymen)—1. Mr J. Cranston, nurseryman, Hereford, £4; 2. Mr C. Turner, £3; 3. Messrs Perkins & Sons, nurserymen, Coventry, £2.

Class 97—48 Cut *Roses*, distinct, 1 truss each (amateurs)—1. Rev. S. R. Hole, £5; 2. Mr C. J. Perry, £3; 3. Mr T. Draycott, £2.

Class 98—24 Cut *Roses*, distinct, 1 truss each (amateurs)—1. Rev. S. R. Hole, £2; 2. Mr C. J. Perry, £1; 3. Mr Skinner, gardener to Captain Christy, Westerham, Kent, 15s.

Class 99—12 Cut *Roses*, distinct (amateurs)—1. Rev. S. R. Hole, £1; 2. Mr C. J. Perry, 15s.; 3. Mr T. Draycott, 10s.

Class 100—6 Cut *Roses*, distinct (amateurs)—1. Rev. S. R. Hole, 15s.; 2. Mr T. Draycott, 10s.; 3. J. E. Mapplebeck, Esq., 5s.; 4. Mr J. Walker, 2s. 6d.

Class 101—12 Cut *Roses*, new kinds,

distinct, sent out in 1866, 1867, or 1868 (open)—1. Mr J. Cranston, £1, 10s.; 2. Mr C. Turner, £1; 3. Messrs S. Perkins & Sons, Park Nursery, Coventry, 15s.; 4. Mr G. Edwards, 10s.

Class 103—Group of Artificial Flowers, made in any material—1. Mr J. Denton, 175 Regent Road, Salford, £1.

Class 109—Miscellaneous, for Plants not contained in any of the above classes (open)—1. Messrs J. Veitch & Sons, £2, 10s.; 2. Mr B. S. Williams, £2; 3. Mr J. Kaye, Wilmslow, Cheshire, £1, 10s.

FRUIT.

Class 110—Collection of Fruit, consisting of 8 dishes of distinct kinds—1. Mr J. Simpson, £6; 2. Mr J. Miller, gardener to Lord Foley, Worksop Manor, Notts, £4.

Class 111—Pine-Apple, any variety—1. Mr G. Ward, £3; Mr J. Deavill, gardener to Major Martin, Ashbourne, £2; Mr W. Chambers, Shirley, near Birmingham, £1.

Class 112—Grapes, Black, single dish—1. Mr W. Jones, £3; 2. Mr W. Woolley, £2; 3. Mr C. Watkins, Holmer Park, Hertford, £1.

Class 113—Grapes, White—1. Mr J. Wallis, £3; 2. Mr W. Hill, gardener to R. Sneyd, Esq., Newcastle-under-Lyne, £2; 3. Messrs H. Lane & Son, nurserymen, Great Berkhamstead, £1.

Class 114—Peaches, single dish—1. Mr A. Hay, gardener to Mrs Holland, Altrincham, £2; 2. Mr R. H. Smith, £1; 3. Mr W. Tillery, 10s.

Class 115—Nectarines—1. Mr W. Carmichael, £2; 2. Mr W. Tillery, £1; 3. Mr C. Turner, 10s.

Class 117—Figs, single dish—1. Mr J. Freeman, 15s.; 2. Mr J. Malcolm, Cholmondeley Castle, Cheshire, 10s.; 3. Mr J. Simpson, 7s. 6d.

Class 118—Cherries, single dish—1. Mr W. Tillery, £1; 2. Mr O. Goldsmith, Polesden, Dorking, Surrey, 15s.; 3. Mr R. H. Smith, 10s.

Class 119—Strawberries, 4 dishes, distinct—1. Mr J. Farquharson, Acton Park Garden, Wrexham, North Wales, £2; 2. Mr R. S. Yates, £1, 10; 3. Mr J. Hulme, gardener, The Hayes, Timperley, Cheshire, £1.

Class 120—Strawberries, 1 dish—1. Mr

J. Fowler, 15s.; 2. Mr J. Farquharson, 10s.; 3. Mr Hulme, 7s. 6d.

Class 121—Melon, Green-fleshed—1. Mr R. Webster, £1; 2. Mr C. Frisby, 15s.; 3. Mr W. Broadbridge, gardener to Sir C. Mordaunt, Warwick, 10s.

Class 122—Melon, Scarlet-fleshed—1. Mr D. James, £1; 2. Mr E. Clarke, 15s.; 3. Mr J. Bolton, 10s.

Class 123—Plums, single dish—1. Mr R. Janson, £1; 2. G. Whitfield, 15s.

Class 124—Basket of Out-Door Fruits, 4 kinds, distinct—1. Mr J. Deavill, 10s.; 2. Mr W. Hill, 8s.; 3. Mr G. Elkin, 6s.; 4. Mr A. Meikle, gardener to S. Howard, Esq., Whalley, Lancashire, 4s.

Class 125—Miscellaneous, for Fruits not mentioned in Schedule—1. Messrs H. Lane & Son (3 pot Vines), £1, 10s.; 2. Mr J. Robson, gardener to Viscount Holmesdale, Staplehurst, Kent (box of home-grown Oranges, &c.), £1.

COTTAGERS' PRIZES.

FLOWERS.

Class A—Window Plant, of any kind—1. Mr W. Renshaw, High Leigh, near Knutsford, 10s.; 2. Mr F. Royle, Ashton-upon-Mersey, 7s.; 3. Mr A. Buckley, Oldham, 5s.; 4. Mr H. Biddles, Loughborough, 4s.; 5. Mr G. Plant, Cheshire, 3s.; 6. Mr W. Eckersall, Whittaker Lane, Prestwich, 2s.

Class B—Largest Collection Grown in one Garden, one bunch each—1. Mr W. Eckersall, 10s.; 2. Mr W. Clarke, Canal Bank, Loughborough, 7s.; 3. Mr G. Hulme, Prestwich, near Manchester, 5s.; 4. Mr H. Biddles, 4s.; 5. Mr F. Buckley, Arley Green, Northwich, 3s.; 6. Mr S. Wooder, Lymm, Cheshire, 2s.

Class C—6 Stocks, distinct—1. Mr W. Clark, 6s.; 2. Mr H. Biddles, 4s.

Class D—6 Roses, distinct—1. Mr H. Biddles, 6s.; 2. Mr W. Clarke, 5s.; 3. Mr T. Buckley, Arley Green, Northwich, 4s.; 4. Mr G. Plant, 3s.

FRUIT.

Class E—20 Strawberries—1. Mr P. Buckley, Marson, near Northwich, 5s.

Class F—20 Cherries—1. Mr P. Buckley, 5s.; 2. Mr P. Buckley, 3s.; 3. Mr W. Clarke, 2s.

Class G—50 Gooseberries—1. Mr W. Clarke, 3s.; 2. Mr T. Andrews, Poulton, near Warrington, 2s.; 3. Mr G. Plant, 1s.

Class H—12 Apples—1. Mr G. Plant, 6s.; 2. Mr W. Clarke, 5s.; 3. Mr W. Eckersall, 4s.

VEGETABLES.

Class J—Collection of Vegetables arranged in a basket—1. Mr W. Clarke, 10s.; 2. Mr H. Biddles, 9s.; 3. Mr T. Painter, Lawton, Cheshire, 8s.

Class K—Collection of Potatoes, 6 of a sort, 4 kinds—1. Mr W. Renshaw, 10s.; 2. Mr W. Clarke, 8s.; 3. Mr H. Biddles, 7s.; 4. S. Wooder, 6s.; 5. Mr T. Buckley, 5s.; 6. Mr S. Painter, 2s.

Class L—12 Kidney Potatoes—1. Mr W. Renshaw, 8s.; 2. Mr T. Wooder, 7s.; 3. Mr H. Biddles, 6s.; 4. Mr W. Clarke, 5s.

Class M—12 Round Potatoes—1. Mr W. Clarke, 8s.; 2. Mr H. Biddles, 7s.; 3. Mr S. Wooder, 6s.; 4. Mr T. Painter, 5s.

Class N—3 Cauliflowers—1. Mr W. Eckersall, 5s.; 2. Mr G. Hulme, 4s.; 3. Mr J. Andrews, 3s.; 4. Mr W. Clarke, 2s.

Class O—3 Cabbages—1. Mr G. Plant, 5s.; 2. Mr W. Clarke, 4s.; 3. Mr T. Buckley, 3s.; 4. Mr T. Painter, 2s.

Class P—20 Pods of Peas—1. Mr H. Biddles; 2. Mr W. Clarke; 3. Mr G. Hulme; 4. Mr T. Painter.

Class Q—20 Pods of Broad Beans—1. Mr H. Biddles, 5s.; 2. Mr G. Hulme, 4s.; 3. Mr W. Eckersall, 2s.

Class S—6 Carrots—1. Mr T. Wooder, 4s.; 2. Mr P. Buckley, 3s.; 3. Mr W. Renshaw, 2s.

Class T—6 Turnips—1. Mr W. Renshaw, 4s.; 2. Mr T. Wooder, 3s.; 3. Mr T. Painter, 2s.

Class U—4 Stalks of Rhubarb—1. Mr J. Andrews, 5s.; 2. Mr T. Wooder, 4s.; 3. Mr T. Painter, 3s.

Class V—6 Onions—1. Mr W. Clarke, 10s.; 2. Mr H. Biddles, 7s.; 3. Mr W. Renshaw, 6s.; 4. Mr T. Wooder, 5s.; 5. Mr G. Hulme, 4s.

Class X—Collection of Herbs—1. Mr H. Biddles, 7s.; 2. Mr T. Painter, 6s.; 3. Mr G. Hulme, 5s.; 4. Mr W. Eckersall, 4s.

ABERDEEN ROYAL HORTICULTURAL SOCIETY, JULY 23, 1869.

THE Summer Show of this Society was held in a magnificent marquee on the Links, yesterday.

The Show was in every respect equal to those of former years (last year, being a special show, excepted), both in the number and the general excellence of the plants. It may be mentioned that the valuable Silver Challenge Cup, competed for by nurserymen and florists only, was gained by Mr M'Pherson, Polmuir, who was also the successful competitor last year, the cup now becoming his own property. The collection of plants which gained this much-coveted prize was the following, viz. :—*Pavetta Borbonica*, *Yucca quadricolor*, *Gymnostachyum Pearcei*, *Alocasia Jenningsii*, *Sanchezia nobilis*, variegated, *Begonia Pearcei*, *Adiantum Farleyense*, *Nepenthes hybrida maculata*, *Yucca filamentosa variegata*, *Acalypha tricolor*, *Ixora Princeps*, *Dichorisandra Mosaica*.

JUDGES.

Pot Plants—Mr Hewitt, Ellon Castle; Mr Mackie, Dunkeld.

Cut Flowers—Mr Methven, Edinburgh; Mr Darling, Aberdeen.

Vegetables and Out-door Fruit—Mr Riddell, Elmfield; Mr Mair, Straloch; Mr Broadfoot, Stoneywood House.

Forced Fruit and Nurserymen's Cup—The whole.

The following is the Prize-list :—

SECTION I.

Six Stove or Greenhouse Plants, in flower, dissimilar—1. George Donaldson, gardener to Earl of Kintore, Keith-hall; 2. J. Duncan, gardener to John M'Kenzie, Esq. of Glack; 3. R. Farquhar, gardener to Colonel Gordon of Fyvie.

Six Fine-Foliage Plants, in flower, dissimilar—1. John Smith, gardener to William Henderson, Esq., Devanha House; 2. J. Duncan; 3. R. Farquhar.

Two Stove or Greenhouse Plants, in flower, dissimilar—1 and 2. James Leiper, gardener to Alexander Nicol, Esq., Lord Provost; 3. James M'Intosh, gardener, Corsindae.

Three Fine-Foliage Plants, dissimilar—1. William Shand, gardener, Fetteresso Castle; 2. George Donaldson; 3. James Leiper.

Four Stove or Greenhouse Plants, in flower, dissimilar—1. R. Alexander, Millburn Street; 2. W. Mercer, Blairs; 3. C. Urquhart, gardener, Woodhill.

Two Greenhouse Plants, in flower, (amateurs only)—1. Thomas Skene, Ashley Place; 2 and 3. R. Alexander.

One specimen Stove or Greenhouse plant, in flower (amateurs only)—1 and 2. W. D. Watson, Ivy Cottage; 3. James Cobban, Huntly Street.

Twelve Stove or Greenhouse Plants, new or rare, dissimilar, pots not to exceed 9 inches diameter (nurserymen and florists only)—1. John M'Pherson, nurseryman, Polmuir; 2 and 3. Benjamin Reid & Co.

Three Orchids, in flower, dissimilar—1. John Webster, Gordon Castle; 2. R. Farquhar.

Four Cape Heaths, dissimilar—1. R. Alexander; 2. W. Shand; 3. R. Alexander.

Three Cape Heaths, dissimilar—1. William Mercer; 2. James Joss, gardener, Anchovy; 3. George Donaldson.

Two Cape Heaths (amateurs only)—R. Alexander.

One Tree Fern (the *Comaria* not considered a Tree Fern)—1 and 2. John Smith; 3. James Leiper.

Nine other Ferns, from the stove or greenhouse, dissimilar—1. George Donaldson; 2. Charles Knowles, Sunnybank; 3. R. Farquhar.

Six other Ferns, from the stove or greenhouse, dissimilar—1. James Joss; 2. John Smith; 3. William Shand.

Three other Ferns, from the stove or greenhouse, dissimilar (amateurs only)—1. R. Alexander; 2. A. M'Beath, Springbank Terrace; 3. George Tough, Mount Street.

Four Lycopods, dissimilar—1. John Smith; 2. John Milne, Polmuir; 3. George Donaldson.

Four Caladiums, dissimilar—1. G. Donaldson; 2. J. Smith; 3. J. Duncan.

Three Marantas, dissimilar—1. John Smith; 2. Charles Knowles; 3. George Donaldson.

Three Coleuses—1 and 2. John Smith; 3. John Littlejohn, Crathes Castle.

Three Gloxinias, dissimilar—1. W. Shand; 2. James Leiper.

One Coleus (amateurs only)—1 and 2. R. Alexander; 3. Thomas Skene.

Eight best-grown Tricolor Geraniums, in "30" pots, distinct named varieties, prize presented by W. H. Davies, representative of Messrs T. & A. Smith, Dulwich, London (open to all)—1. J. Leiper; 2. J. Duncan; 3. A. Hadden, Denmore.

Three Geraniums, stage or French, dissimilar—1. J. Mitchell, gardener, Westburn; 2. A. M'Donald, Tillery House; 3. P. Henderson, Ashley.

Three Geraniums, fancy, dissimilar—1. William Mercer; 2. R. Alexander; 3. W. Mercer.

Three Geraniums, scarlet, pink, or white, dissimilar—1. and 2. John Milne; 3. A. Greig, gardener to Sir A. Grant, Bart., Monymusk.

Three Geraniums with variegated foliage, dissimilar, excluding Tricolors—1. William Mercer; 2. J. Leiper; 3. P. Henderson.

Three Geraniums, Tricolors, dissimilar—1. James Leiper; 2. John Smith; 3. William Shand.

Two Geraniums, stage or French, dissimilar (amateurs only)—1. R. Alexander; 2. and 3. G. Tough.

Two Geraniums, fancy, dissimilar (amateurs only)—1. R. Alexander; 2. and 3. G. Tough.

Two Geraniums, scarlet, pink, or white, dissimilar (amateurs only)—1. A. M'Beath; 2. R. Alexander; 3. W. D. Watson.

Two Geraniums, variegated and dissimilar (amateurs only) excluding Tricolor—1. W. D. Watson; 2. R. Alexander; 3. James Sedgewick, Princes Street.

Two Geraniums, Tricolor, dissimilar (amateurs only)—1. F. Calder, Brucklay; 2. R. Alexander; 3. W. D. Watson.

Three Fuchsias, dissimilar—1. James Leiper; 2. P. Henderson; 3. James Leiper.

One Fuchsia (amateurs only)—1. and 2. R. Alexander; 3. W. D. Watson.

Two Petunias, dissimilar (amateurs only)—1. R. Alexander; 2. and 3. G. Tough.

SECTION II.—CUT FLOWERS.

Twenty-four Roses, named, dissimilar (open to nurserymen and other competitors)—Prize by John Keynes, nurseryman, Salisbury—1. Geo. Wyness, Usan House, Montrose; 2. Wm. Shand; 3. James Littlejohn.

Twelve Roses, named, dissimilar—Prize by Messrs Downie, Laird, and Laing, nurserymen, Edinburgh—1. P. Harper, gardener to J. F. G. Shirrefs Gordon, Esq. of Craig; 2. G. Wyness; 3. G. Donaldson.

Twelve Roses, varieties, named, dissimilar, three blooms of each—Prize given by J. F. G. Shirrefs Gordon, Esq. of Craig (nurserymen excluded)—J. Littlejohn.

Six Roses, named, dissimilar—1 and 2. T. Skene; 3. A. M'Beath.

Twelve Pinks, named, dissimilar—1. William Shand; 2. A. M'Beath; 3. William Shand.

Six Pinks, named, dissimilar (amateurs only)—A. M'Beath.

Six Spikes Herbaceous Phloxes, named, six varieties—1 and 2. William Shand ; 3. J. Joss.

Twelve Spikes hardy herbaceous plants, named, dissimilar—1. James Joss ; 2. A. Westland, Banchory ; 3. J. Kerr, Kepplestone.

Six Spikes hardy herbaceous plants, named, dissimilar (amateurs only)—1 and 2. W. Third, Banchory ; 3. George Tough.

Six Double Stocks (plants) dissimilar, in one box—1. John Littlejohn ; 2. J. Gerrard, Mile-end ; 3. William Shand.

Four Double Stocks (plants) in box

(amateurs only)—1 and 2. J. Anderson, Hutcheon Street.

One Table Bouquet, 12 inches diameter—1. Stewart Watson, foreman gardener, Gordon Castle ; 2. William Smith, gardener to Colonel Erskine, Pit-todrie ; 3. William Shand.

Dinner-Table Decoration—1. Henry Grant, gardener, Park ; 2. J. Riddel, Balgownie Lodge.

The best Hand Bouquet, 6 inches diameter—this prize presented by the Amateur Hortus Club—1. William Shand ; 2. James Moir, photographer, Crown Street ; 3. H. Grant.

SECTION III.—FRUIT.

Collection of Fruit, forced or otherwise, to contain five dishes, excluding Pine-Apple—1. J. Mackie, gardener, Dunkeld House ; 2. R. Farquhar ; 3. George Donaldson.

One Pine-Apple—John Webster.

One bunch Black Grapes—1. E. Noonan, gardener, Scotston ; 2. G. Wyness ; 3. E. Noonan.

One bunch White Grapes—1. E. Noonan ; 2 and 3. John Webster.

One Melon, green-fleshed—1, 2, and 3. John Riddel, gardener, Balgownie.

One Melon, other coloured—1, 2, and 3. John Joss.

Twenty-five Cherries—1 and 2. J. Kerr ; 3. J. Mackie.

Fifty Raspberries—1. R. Connon, East Seaton ; 2. E. Noonan ; 3. John Littlejohn.

Fifty Strawberries, largest, in five named sorts—1. Patrick Cocker, Sunny-park ; 2. William Davidson, Springbank Terrace ; 3. John Littlejohn.

Fifty Strawberries, best flavoured—1. William Davidson ; 2. William Smith ; 3. R. Connon.

Fifty Gooseberries, largest—1. Patrick Cocker ; 2. John Webster ; 3. John Smith.

Fifty Gooseberries, best flavoured—1. Patrick Cocker ; 2. William Davidson ; 3. John Webster.

One Basket Red, White, and Black Currants, 1 imperial pint each—1. John Henry, gardener to J. F. Hadden, Esq., Union Grove ; 2. John Webster ; 3. John Taylor, gardener to John Blackie, Esq., Carron Lodge.

SECTION IV.—VEGETABLES.

Collection of Vegetables containing fourteen varieties (market-gardeners only)—1. R. Connon, East Seaton, Old Aberdeen ; 2. William Davidson ; 3. James Kinnaird, Outseats, Rubislaw.

Collection of Vegetables containing nine varieties, excluding Cucumber and Vegetable Marrow (market-gardeners only)—1 and 3. Patrick Cocker.

Collection of Vegetables containing ten varieties (gentlemen's gardeners only)—2. William Smith ; 3. Alex. Greig, gardener to Sir Archibald Greig.

Collection of Vegetables containing

six varieties (amateurs only)—1. A. G. M'Beath ; 2 and 3. James Anderson.

Basket of Salads containing six varieties—1. Wm. Smith ; 2. John Riddel ; 3. John Littlejohn.

Four Heads Cauliflower—1. R. Connon ; 2. Alexander Greig ; 3. George Davidson.

Four Cabbages—1. W. Davidson ; 2. P. Cocker ; 3. R. Connon.

Fifty Pods Pease—1. James Barry, gardener, North Broadford ; 2. George Donaldson ; 3. James Duncan.

Twelve Potatoes, kidney-shaped—1,

2, and 3. Alexander Mortimer, Rubislaw.

Twelve Potatoes, round—1. R. Connon; 2. R. Paul, Polmuir; 3. Alex. Mortimer.

One Brace Cucumbers—1. R. Farquhar; 2 and 3. George Donaldson.

Twelve Carrots, early—1. J. Kerr; 2. Alexander Greig; 3. Patrick Cocker.

Six Turnips, white—1. John Littlejohn; 2. John Henry; 3. Alexander Hadden.

Twelve Onions, autumn sown—1 and 3. Alexander Greig; 2. Geo. Donaldson.

One Dish twelve Mushrooms (presented by John Angus, Esq., town-clerk)—1 and 2. R. Connon.

An award of merit was given to a collection of twelve Seedling Geraniums, shown by Mr James Cocker, nurseryman, Sunnypark, one of which, named Corporal Cameron, was awarded a certificate of honour, as was also a Seedling Geranium, exhibited by Mr Rae, Rosemount. Mr Webster, Gordon Castle, received a certificate of honour for a beautiful Seedling Pea; twenty-four Pansies, shown by Mr Gordon of Craig, were awarded a certificate of merit. The collection of plants exhibited by Messrs B. Reid & Co., Cocker, W. Smith & Son, M'Pherson, and Gerrard, nurserymen, were much admired. Messrs Morrison Brothers exhibited a fine collection of Roses. The Roses sent by Mr Moir, gardener, Ury, for exhibition, were also worthy of special notice. Messrs Gardno and Darling, seedsmen, sent a quantity of garden implements for exhibition, which attracted a good deal of attention.



THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S INTERNATIONAL SHOW, which is to be held in Edinburgh on the 8th or 9th of this month, bids fair to be the grandest fruit show that has ever taken place in the country.

We understand that in all towns on "The North British Railway Systems," where ten individuals make application, excursion tickets will be granted to Edinburgh at one fare. Such tickets will, however, have to be stamped in the Show-room.



SIR,—In your report of the Royal Caledonian Horticultural Society's Meeting in this month's *Gardener*, I observe that you credit Mr Maconnachie with the second prize for "Two Bunches Grapes (flavour), black." As this was one of the prizes won by me, I beg you will be good enough to rectify this mistake in your next number.—I am, &c.,

JOHN LAING.

PITCAIRLIE GARDENS, AUCHTERMUCHTY, July 5, 1869.



Notices to Correspondents.

J. S., WILTS.—We are not able to say what has caused your Grapes to shank. You give no data. The cause of shanking is a deficient supply of nutriment to the Grapes by the roots and foliage. The causes of this deficiency are various—the roots unhealthy, the foliage injured, and the crop too heavy. These evils present, and shanked berries are sure to prevail. You must judge whether any or all of these evils prevail with you, and remedy them as directed by us in the *Practical Treatise on the Grape Vine*, which is too long for quotation here.

CAMELLIA.—Disbud your Camellias at once. Leave two buds on the point of each shoot—the largest and the smallest. This will give you a greater succession of bloom than if you left the two most advanced. In future, disbud as soon as the buds are fairly formed.

A YOUNG GARDENER.—Lindley's *Theory and Practice of Horticulture* costs 21s. Longman & Co. publish it, but any bookseller will procure it for you. It is a grand book; study it closely.

We believe too strong fumigation with tobacco will injure Grapes, but we never saw it done.

FIGUS.—We hope to have space next month to give a paper read before the Royal Horticultural Society at Manchester, by Mr Barron of Chiswick, on the cultivation of Figs in pots, which will give you the best possible information on the subject. Mr Barron, on the same occasion, exhibited the most superb collection of Figs in pots, from the gardens of the Horticultural Society, that were ever seen in public.

VINE-GROWER.—Never mind what you read to the contrary. Next year, when your Lady Downes Grapes are stoning, keep the house as cool as a greenhouse for three weeks, and “the spot” will do you no serious damage. This is our experience, and we have grown that best keeper of all Grapes for fourteen years.

A GREENHORN.—Write to Messrs Lee of Hammersmith, and they may be able to send you a few berries of the Grape. We have it, but not yet ripe. We thought it a nice-looking good-flavoured Grape when we tasted it at Leicester. We have found no difficulty in setting Mrs Pince's Muscat. The bunches are large, and we think they will colour well. We saw a very fine bunch of it, along with other very fine Grapes, a short time ago at Tynningham. Next month we shall be able to let you know more about its flavour than we could now.



THE GARDENER.

OCTOBER 1869.

THE ROSE.

(Continued from page 393.)

CHAPTER XV.—AT A ROSE-SHOW.



AS the young knight in the olden time, having reached “y^e place ordayned and appointed to trye y^e bittermoste by stroke of battle,” became naturally curious concerning his adversaries, and, after caring for his horse and looking to his armour, went forth to inspect the Flower of Chivalry, and the lists, in which that flower would shortly form a bed of “Love-lies-bleeding” —so the exhibitor, having finally arranged his Roses, strolls through the glowing aisles of the show. Soon experience will teach him to survey calmly, and to gauge accurately, the forces of his foe ; but now he but glances nervously, furtively, at the scene around him, like a new boy at some public school. The sight brings him hopes and fears. Now a hurried sidelong look shows him flowers inferior to his own, and he is elate, happy. Now an objectionably large Pierre Notting obtrudes itself upon his vision, and his heart fails him. He steps, as it were, from the warm stove, gay with Orchids, into the ice-house of chill despair. He is much too anxious and excited to form any just conclusions ; and therefore, to engage his thoughts more pleasantly, I will introduce him to his co-exhibitors.

Viewed abstractedly, these co-exhibitors are genial, generous, intelligent, men of refined taste and reverent feelings, with the freshness of a garden and the freedom of the country about their looks and ways. Viewed early in the morning, as the novice sees them now, they are a little dingy, without the freshness of the garden upon them, but with

something very like its soil. Some have not been in bed since yesternight; not one has slept his usual sleep. Many have come from afar:—

“They have travelled to our Rose-show
From north, south, east, and west,
By rail, by roads, with precious loads
Of the flower they love the best:

“From dusk to dawn, through night to morn,
They’ve dozed ’mid clank and din,
And woke with cramp in both their legs,
And bristles on their chin.”

“*Pulvis et umbra sumus!*” they sigh, we are all over dust, and shady. They are like Melrose Abbey—sunlight does not suit them. “The gay beams of lightsome day” are not becoming to countenances long estranged from pillow, razor, and tub. They have come to meet the Queen of Flowers, as Mephibosheth to meet King David, not having dressed his feet, or trimmed his beard, or washed his clothes from the day the king departed. And this reminds me that we, the clerical contingent, appear upon these occasions especially dishevelled and dim. Sydney Smith would undoubtedly say that we “seemed to have a good deal of glebe upon our own hands.” In the thick dust upon our black coats you might write or draw distinctly;—(I once saw traced upon the back of a thirsty florist—of course a layman—*To be kept dry; this side up*)—and our white ties—

“Qui color albus erat, nunc est contrarius albo,”

are dismally limp and loose. The bearded brethren remind one of St Angus, of whom we read that, perspiring and unwashed, he worked in his barn until the scattered grain took root and grew on him.

By-and-by, when the exhibition is open to the public, we shall be as spruce as our neighbours, and as bright as soap-and-water—he is no true gardener who loves not both—can make us. Meanwhile let me assure the new-comer among us that there are strong brains and gentle hearts within those swart and grimy exteriors, and that he will find in the brotherhood hereafter—so I prophesy from my own experience—many dear and steadfast friends. For me Floriculture has done so much—quickenings good desires and rebuking evil—that I have ever faith in those with whom its power prevails. But let us never forget, while we congratulate and commend each other as florists, that humility on the score of our multitudinous weeds is more becoming than pride in our little dish of sour wizened fruit; that “we are the sons of women, Master Page;” and that the old serpent hides still among our flowers. And now, to confirm such wholesome memories,

I will present to the young Rosarian one or two specimens of our weaker brethren, that he may learn to check betimes in himself those infirmities which are common to us all, and which, when they gain the mastery, make men objects of contempt and ridicule. I must add that, although I paint from the life, my pictures are never portraits of the individual, but always studies from the group—a group brought together by memory from diverse parts and periods, but displaying in its members such a strong family resemblance that I must guard myself against a natural suspicion.

The Irascible Exhibitor loses no time in verifying his presence to our eyes and ears. Talking so rapidly that “a man ought to be all ear to follow,” as Schiller said of Madame de Staël, and so loudly that he may be heard in all parts of the Show, he is declaiming to a policeman, a carpenter, and two under-gardeners, who are nudging each other in the ribs, against the iniquitous villany of “three thundering muffs” who recently awarded him a fourth prize for the finest lot of Roses he ever cut. He communicates to the policeman, who evidently regards him as being singularly advanced in liquor, considering the time of day, his firm belief that the censors in question were brought up from a coal-mine on the morning of the exhibition, and had never seen a Rose before. He does hope that, on the present occasion, somebody will be in office who knows the difference between that flower and a Pumpkin. Here he is informed that Mr Trueman, a most reliable Rosarian, is to be one of the judges. He is delighted to hear it. Mr Trueman is a practical, honourable man; and having arranged his Roses with a running accompaniment of grunts and snorts, he goes in quest of that individual, expresses entire confidence in his unerring judgment, and the happiness which he feels in submitting his Roses to a man who can appreciate them, instead of to such a set of old women as were recently judging at —, when they ought to have been in bed.

Alas for our poor feeble humanity!—two hours later Mr Irascible, finding no prize-card on his boxes, denounces Mr T. as an ignorant humbug, or knows for a fact that he is in vile collusion with the principal winners of the day,—reminding me, in his swift transition from praise to condemnation, from love to hate, of a ludicrous Oxford scene.

Tom Perrin kept livery-stables, and in those stables the stoutest of wheelers and the liveliest of leaders for our tandems and fours-in-hand. Unhappily for Tom, all driving *in extenso* was strictly forbidden, and he came, in consequence, to frequent collisions with our potent, grave, and reverend Dons. Upon the occasion to which I refer he had been summoned to appear before the Vice-Chancellor, Doctor MacBride, then Principal of Magdalen Hall; and as the offence

was flagrant, and his previous convictions were numerous, he was specially anxious to obtain an acquittal. He presented himself in deep mourning, and wore the expression of a simple, modest citizen, who really didn't know what a tandem was. He placed a pile of ancient tomes by his side (Greek Lexicons for the most part, and Latin Dictionaries lent to him by the undergraduates), and consulted them from time to time, during his trial, upon difficult points of law. He bowed to the court at intervals with a most profound respect, and he addressed the Doctor as "My Lord Judge," "Your Grace," and "Venerable Sir." But when the verdict was given, and the defendant heavily fined, I never saw anything in dissolving views so marvellous as Tom Perrin. He set his hat jauntily on the side of his head; he shut his Lexicons with a bang, and, confronting his judge with a look of scorn and disgust, he said—"MacBride, if this be law, hequity, or justice, I'm ——," well, let us say, something which happens to a brook when its waters are arrested by a temporary barrier constructed across the stream.

So does our irascible exhibitor now glare around him with "the dragon eyes of angered Eleanor." He would like a revival of those days when "a judge was not sacred from violence. Any one might interrupt him, might accuse him of iniquity and corruption in the most reproachful terms, and, throwing down his gauntlet, might challenge him to defend his integrity in the field; nor could he without infamy refuse to accept his defiance, or decline to enter the lists against such an adversary."* That is to say, he would like to interrupt, to accuse, to reproach, and perhaps to challenge, but certainly not to fight, for these passionate folk are invariably cowards. They dare not attack with anything but words; unless they possess an overwhelming power, like that suburban, pot-house, betting Eleven, who once upon a time persuaded Jimmy Dean to act as umpire at one of their boosy matches, and ran him home six miles across country with furious execrations and threats to London, because he gave a decision adverse to their interest at a critical period of the game.

At one time you will see the Irascible Exhibitor standing by his Roses, and revealing his wrongs to any who will hear; occasionally making a deep impression upon elderly ladies, and almost persuading very young reporters to chronicle his woes in print; but oftener failing to evoke sympathy, you will find him with a countenance, like Displeasure in the 'Fairy Queen,' "lompish and full sullein," aloof, solitary—like some morose old pike swimming slowly about in a back-water, while all the other fishes are leaping in the sunlit stream.

* Robertson's 'History of Charles V.,' vol. i.

Finally, he discovers some malcontent like himself—*un sot trouve toujours un plus sot qui l'admire*—and they go off together to the darkest corner of the most dismal room of their inn, to enjoy their woes, and to defy their fellow-creatures, over a succession of “2-brandies and cold.”

I know only of one other species of exhibitor discreditable to the genus, *The Covetous Exhibitor*, whose avarice has slain his honour. His motto is *Money*.

“Si possis recte, si non quocunque modo Money.”

He cares nothing for the Rose itself, sees no beauty, and smells no perfume, only for the prizes it may win. *True* aime plus bran que *Rose*, and will go through any amount of dirtiness to get his nose to the swill. On the eve of a show he will beg or will buy the Roses of his neighbours. He will show several flowers of the same Rose, attaching the different names of those varieties which have some resemblance to each other. He knows how to conceal an eye, and to fix a petal in its place by gum. He will add foliage, whenever he dare. He, too, likes a few words with the judges before they make their awards. He never saw them in such wonderful health; in fact, their youthful appearance is almost comic. They will find the Roses rough and coarse (which means that his own are undersized); or there is a sad want of substance in the blooms this morning (which means that his are over-blown).

In accordance with the old and true proverb, his dishonesty does not thrive. He steals several paces in front of his brother archers, but for one arrow hitting the gold, he misses, breaks, or loses fifty. I remember some years ago, just as we had commenced our survey as judges at one of the provincial shows, an exhibitor reappeared, hot and out of breath, and “begged pardon, but he had left a knife among his Roses.” He had a magnificent Rose in his coat, and, “from information which I had received,” I thought it my duty to watch his movements without appearing to do so. He left the tent with a much smaller flower in his button-hole, and I went immediately to his box. There was the illustrious stranger, resplendent, but with a fatal beauty. The cunning one had hoist himself with his own petard, for he had forgotten another bloom of the same Rose, already in his 24, and I at once wrote “Disqualified for duplicates” upon his exhibition card. Keen must have been the shaft which he had himself feathered from that borrowed plume, but keener far to feel (for it was a fact patent to all) that if he had not made the addition, he must have won the premier prize.

Another failure of empirical knavery, another slip between the cup of silver and the lip of stratagem, occurs to my recollection. It was my good fortune to win a prize goblet annually given for Roses at one

of our midland shows, so frequently, that my success became monotonously irksome to the competitors generally, but specially to one of these covetous exhibitors who grow Roses only for gain. He induced, as it afterwards transpired, two other growers of the Rose to combine with him in an attempt "to beat the parson;" and so sure was this clique of success, that they brought a couple of bottles of wine to the show, to be quaffed from the cup, which I won easily. In the afternoon I happened to come upon the conspirators drinking their port in a quiet corner of the grounds, and one of them not only invited me to partake, but, as from a sudden impulse, and as though the truth must come out with the wine, to my intense amusement, and to the still more intense amazement of his friends, revealed all the history of their little game. He declared that he was thoroughly ashamed of "the job," and was heartily glad they were beat. Truly it was a strange confession, but I believe the penitence was sincere.

The Despondent Exhibitor is also an exceptional, but by no means discreditable, variety. He is physically incapable of festive emotions—"a sad, gloom-pampered man," but a good Rosarian, and a righteous. If a cloud crosses the sun, he shuts up like a *Gazania* or a *Crocus*; if a few drops of rain fall, he hangs his head like Virgil's poppies,

"Lassove papavera collo,
Demisere caput, pluvîâ quum forte gravantur."

He never has the slightest expectation of a prize. He has had more caterpillars, aphides, blights, beetles, and mildews in his garden than ever were seen by man. So he tells you with a slow and solemn tone, looking the while as though, like Mozart composing his own requiem, he listened to some plaintive music. I used to regard him with a tender pity, as being unhappy. I used to sigh

"Alas for him who never sees
The stars shine through his cypress trees!"

But our further acquaintance has convinced me that he has a relish for melancholy. I watched him once, when I knew, but he did not, that he had won a first prize, to see what effect success would have upon him. He came slowly to his Roses, and read the announcement with an expression of profound despair, just as though it had been a telegram informing him that the bank, in which he had placed his all, proposed a dividend of fourpence in the pound!

Warned by these rare examples against anger, avarice, and despond, assured that the horses which rear, bite, kick, and sulk, are seldom winners of the race, let the young exhibitor now acquaint himself with his colleagues generally, and let him learn from them, as from men who have not lived in vain amid the beauties and the bounties of a

garden, contentment, generosity, perseverance, hope. They will tell him that the lessons of defeat will most certainly teach him to conquer, if he will only learn them patiently, noting his failures, and making every effort to overcome them. Fighting for the prize, he resembles in one point, and one only I trust, the prize-fighter : when judgment, temper, self-mastery are lost, the battle is lost also. They will tell him not only how to win his laurels, but how to wear them gracefully ; in prosperity, as well as in adversity, to preserve the equal mind. But which will be his lot to-day ? The crisis approaches, and the stern mandate of the peremptory police is already sounding in his ears, "This tent must be cleared for *the Judges*."

It used to be said at our flower-shows, "Oh, any one can judge the Roses ;" and when, few in quantity and feeble in quality, they formed but a small item of the exhibition, they had, of course, no special claims ; but this indifference unhappily prevailed long after the Rose had become a chief attraction in our summer shows, and even where it was the only flower exhibited. At our great Rose-shows we have succeeded in eliminating from the halls of justice incompetent judges ; but elsewhere the Rosarian takes with his Roses a very anxious heart. Only last year one of our most successful competitors, a Leicestershire clergyman, who had just won two first-prizes at the Crystal Palace, took some Roses equally good to a show at Burton-upon-Trent. *Facile princeps*, he was not even commended ; and on remonstrating was informed by one of the judges that his Roses, to which precedence had been given at a national contest, "*were not the right sorts for exhibition*." The fact is, that three varieties of censors are still appointed over the Roses at our provincial shows. There is the man who loves them, knows and grows them well—his judgments will be right. There is the man who is a clever florist and grows Roses partially—his judgments will generally be right, but if the collections are large or numerous, or nearly equal in merit, he will be perplexed to incapacity. Thirdly, there is the man appointed to be judge of the Roses because he once won a prize for Cucumbers, or because the mayor knows his uncle. The latter is either, in his wise silence, quite useless, or, in his fool's loquacity, a dreadful bore—dangerous wherever he has power. To the second I would say,

"Cassio, I love thee, but never more be officer of mine"

until you know more about Roses, To the first I take off my hat, as to "a chief justice among chief justices,"* and wish that he may ever preside in court when I have a cause to plead.

The arbiter at a Rose-show should be a man who not only lives

* So Fuller designates our great Nottinghamshire judge, Markham.

among Roses, but among Roses in their most perfect phase. He should know the capabilities of each separate variety as to symmetry, colour, and size, that he may estimate and compare accurately the merits of the flowers before him. He should know thoroughly their habit of growth, their peculiarities of leaf and wood, that he may correct misnomers, and detect additions or duplicates. He should regard his office as a sacred duty, not only because justice and honour are sacred things, but because there seems to be a special sanctity in such beautiful handiwork of God ; and to be untruthful and dishonest in such a presence and purity should be profane in his sight, as though he lied to an angel. But his duty will be his delight also, and thus, having his inclination at unity with his conscience, and his love instructed by his reason, he cannot fail to fulfil it. Knowing the law thoroughly, and sifting the evidence minutely, he must give the sentence of a righteous judge. Never tiring, when the competition is close, in his keen and patient scrutiny estimating every Rose by a fixed standard, setting down in his note-book, counting, comparing their respective marks of merit and defect, bringing the boxes, if distant, into close proximity, anxiously attentive to the comments of his colleagues, bestowing the same care upon the "cottager's 6" as upon the "nurseryman's 72," he is never satisfied until all doubts are dispelled, and the award of his lips is the sure conviction of his heart.

As the judge enters, the exhibitor leaves, the show, first turning to gaze once again upon the exquisite beauty of the scene, the long avenues of Roses, the fairest examples which the world can bring of its most lovely flower. The flat surface of the boxes is pleasingly diversified (or should be) by the stately Palm, the graceful Fern, the elegant Humea, by Croton, Caladium, Dracæna, Coleus, and the like, which not only prevent the uniformity from becoming monotonous, and the repetition wearisome, but soften agreeably that blaze of colour which would be, without such contrast and interruption, too bright for mortal ken. These are placed at regular intervals in the centre of the tables, singly, or in groups. Pretty specimens of the silver-leaved Maple (*Acer Negundo variegatum*), about 4 feet in height, were thus freely introduced, and with admirable effect, at the last Birmingham Rose-show.

And now there comes for this young lover who has just made, as it were, his proposals to the Rose, a tedious interval, a long suspense, a nervous, restless agitation. The lady has always smiled on him, but what will papa say—*i.e.*, the judge ? When next the suitor sees his sweetheart, will she bring with her the written approbation of his suit, even as Miss Wilson returned from the one Professor, her father, to the other Professor, Aytoun, her lover, having a slip of paper pinned upon

her dress, and upon that paper the happy words, "With the author's compliments"? When next the exhibitor sees his Roses, will there be a prize-card on his box?

He wonders fretfully. He retires to his hotel. He refreshes the outer and the inner man. What can be the matter with the coffee-room clock? how slowly it ticks! how the long hand lags and limps! every minute marked upon the dial might be a pebble upon the grass-plot of the future, blunting the scythe of Time. Will that selfish snob in the corner never put down the newspaper? He will, he does: the exhibitor seizes it eagerly, and reads it, or rather gazes vacantly upon it for nearly a minute and a half. What are money-markets or murders to him? Sixteen closely-printed pages, and not one word about Roses! He throws down the *Times* and looks out of the window. Ah, there is a shop opposite with pictures and photographs; strolls across; has seen them all before; is getting rather sick of photographs; strolls back again; must have been away ten minutes, but coffee-room clock says three. Selfish snob in corner writing letters with a coolness and equanimity quite disgusting; he looks up and is recognised as rival amateur, proprietor of Pierre Notting; something about him, exhibitor thinks, not altogether pleasing; not a nice expression; shouldn't say he was *quite* a gentleman.

At last the malignant timepiece, having tardily announced the meridian, with a minim rest between the notes, as though it were a passing bell tolled in Lilliput, and having disputed every inch of the succeeding hour, is compelled to give up its match against time, and the exhibitor hears the thrilling sound which proclaims the Rose-show open. He gives his best hat a final brush; he adjusts for the last time the pretty Rose in his coat (be still, throbbing heart beneath!); and back he goes to his fate. He presents at the door his exhibitor's pass; and then "affecting to be unaffected," but nervous as a girl at her first ball, he wends his anxious way to his Roses.

What shall he find there—defeat or victory? Shall the music of the band express to his ears the gladness of his spirit, the triumph of his hope, or shall

"Sharp violins proclaim
Their jealous pangs and desperation,"

in unison with his own? Let him be prepared for either issue. Let him anticipate defeat, as being but a recruit and pupil; but let him remember, when defeated, that more than one great statesman has been plucked for little-go—more than one great general has lost his first battle—more than one Royal Academician has had his first picture declined by the hanging-committee. If victory comes, let him never

forget that she only *stays* with the meek. Where success brings pride, then, as Lamb writes in a Latin letter to Cary, *commutandum est he! he! he! cum heu! heu! heu!* and all men shall laugh at the braggart's fall.

In prosperity or in adversity, abroad or at home, let him *never bore his friends about Roses*. Let him remember Heliogabalus! At a magnificent banquet he caused Rose-leaves to be showered in such profusion on his guests that several were suffocated, and died in aromatic pain.

Again I say let the exhibitor enter the show, and leave it, with a wise, thankful, trustful heart!

“Who misses or who wins the prize,
Go, lose or conquer as you can;
But if you fail, or if you rise,
Be each, pray God, a gentleman!”



HINTS FOR AMATEURS.—OCTOBER.

MUCH time and attention will now be required where gardens are to be kept free from litter, falling and decaying leaves, which offend the eye as well as the sense of smell. All the Brassica tribe of plants should be gone over, and the lower leaves taken off; many will be decaying among Brussels Sprouts, Broccoli, Savoys, and Kale. Air freely admitted among them is very essential to their wellbeing. Leaves from fruit-trees will now be coming off freely, and should not be allowed to remain in quantities by the side of the box or other edgings, otherwise long dead patches may follow. Everything of a decaying nature should be taken to a considerable distance from any dwelling. There should be nothing likely to produce fungi taken to the general heap, but should be charred along with parings of walk-edgings, prunings, &c., to be taken to the vegetable, fruit, or flower ground. This dressing, especially on old garden-ground which has been highly manured, has a more kindly and sweetening influence than is generally admitted. We often, to save time and labour, have all decaying garden-refuse wheeled on to empty ground, and left in ridges covered with earth till the whole can be trenched down 2 or 3 spades deep. However, at present there should be little empty space where close cropping is practised. The clearing off of autumn Cauliflowers, Strawberries, &c., may give space, but no manure should lie exposed to be wasted by evaporation. Beech and Oak leaves should be gathered when they are dry, and kept in store to be used with manure for hot-

bed-making—the leaves retain the heat and keep the bed regular for a long time. A hotbed here, which was made last November with a large proportion of Beech-leaves among the dung, is still warm, and plenty of Cucumbers are produced. We have seen some Pine-Apple growers stack and thatch their tree-leaves as one would corn. Let everything be done now to help on winter work. Any improvements and renovations may be executed ; box edgings made and repaired ; gravelling walks, draining, trenching, and preparing for fruit-tree planting : collecting of soils, &c., may be carried on when opportunity affords. Ordinary trenching and digging may be commenced, but we prefer leaving this work till most of the tree-leaves are down. Let more Cabbage be planted if required. If those left in the seed-bed are loosened or otherwise disturbed, let them either have some clean earth placed round the roots, or lift them and place them in sheltered quarters. Where there is no fence or wall for shelter, much can be done by using Pea-stakes thickly on the north and east sides of the plants. Lettuce and Cauliflower may still be planted and otherwise attended to, as advised last month. Let slugs and other unwelcome visitors be carefully looked after. Dustings of lime and small coal-ashes over every surface where young plants are growing will keep them safe. About the end of the month Lettuce and Endive ready for use, lifted with all their roots and placed in earth under protection, will keep up a supply for some time. Growing plants of the above may be planted in frames, giving plenty of air when weather is dry and not frosty, and when wet bricks may be placed at top and bottom of the sashes in the way which market growers use their Mignonette, Stocks, Radishes, &c., through the winter. No one would imagine the attention they give to airing unless they witnessed the men at work ; and well the attention given is remunerated. Endive may be blanched by placing slates or boards over the plants ; doing a small quantity frequently will keep up a supply. Carrots may now be lifted and stored away. Let them be moderately dry before they are taken under cover ; large heaps of them are liable to decay if stored away damp. A quantity of dry straw thrown over them will keep them as well as anything. A pit built in the earth, with covering to keep out frost, damp, &c., makes a good “store” for roots of all kinds. The best for the purpose we know is an old ice-house, with shelves round the sides, and covered over, water and rat proof. Celery may be earthed-up as required, allowing the hearts to remain clear of the soil. Keep the leaves erect and compact. If the ground should be dry, give a good soaking of manure-water before earthing-up. Earthing-up Cabbage, Savoys, Kale, &c., may be done with advantage at this season, especially if they are in exposed posi-

tions; however, it is years since we did anything of the kind, the ground being rather dry, and the filling-in of the drills drawn for the plant keeps the stems in their places. A quantity of Parsley may be lifted and placed under protection, so that when snow or severe weather might set in, picking the Parsley-tops could be done without injuring the plant. Hoops, over which mats, &c., can be placed, is a good system for protecting tender or other plants. Peas in full bearing might be kept on, if timely attention could be given, with mats. When frost sets in while covering, the material should not touch the plants, as they would get frozen together, and the latter would be destroyed entirely. Our sunk pits, filled with Little Gem and Tom Thumb, might have done good service in November, but the want of water and time to apply the little we could spare has brought on premature fruiting. Care must be exercised when winter Spinach is picked, so that the outside leaves only should be taken, leaving the heart entire. Laying down Broccolis with their hearts from the sun may be done now, to prevent the sun injuring their hearts by rapid thawing after frost; soft vigorous growth is also checked. Cauliflower and autumn Broccolis turning in too quickly may be lifted and placed by the roots in earth behind a wall, shrubbery, &c., which will keep up a succession for some time.

Pears and Apples are mostly gathered this month; for the sake of convenience keep late and early kinds separate. If there is room to lay them thinly on shelves, they will be less likely to be injured from handling when the ripe ones are picked out. Keep the fruit-room dry and airy for a short time after the crop is housed, and for late keeping a dry, close, and dark house is best: keep cool, but frost should be excluded. Examine the fruit frequently for some time, so that all that are decaying may be taken away. Trees for walls and orchards may now be ordered without delay; old trees, which have been frequently cut down, should not be accepted for planting though offered gratis. Choose young healthy plants of even growth, clean bark, free from old wounds or snags. Wide borders well mixed with fresh turfy loam will suit most trees. Concrete, used in a semicircle for a yard or more next the wall, will prevent the roots from going into the subsoil. When planting, the soil should be made firm and the roots spread over the surface—cutting off any that are broken or very long and coarse; fibre is what will give success. The roots should be kept up nearly on a level with the surrounding soil, placing a layer of good earth over them 6 inches or more deep; then a mulching of litter over all to keep out frost. The shoots should be fastened so that they will not be beaten by high winds; but allowance should be made for the trees sinking, that they may not be allowed to

hang on the ties ; making the soil thoroughly firm will in a manner counteract the evil.

Bedding plants of all kinds should soon be where protection can be given. They may be placed in the pits or other winter-quarters, but give plenty of air on every favourable opportunity. All things must now be watered carefully, always giving enough to moisture all the soil about the roots, but it need be given only when really necessary. Fresh air, free from damp, is now desirable for Cinerarias, Primulas, Pelargoniums, &c. The latter, if not already done, should be shaken out of the old soil, the roots reduced, and repotted into smaller pots. More sand than when in flowering-pots is necessary till the roots are plentiful. If plants are too numerous for the means to grow them in, it would be well to give some of them away, or destroy them, rather than crowd and weaken the whole stock. Calceolaria cuttings may now be taken off an inch or two long, using the young tops. Use sandy loam in pans, pots, or shallow boxes, well drained : place some clean sand over the surface, and put in the cuttings firmly ; shade them from sun, keep moderately moist, but no damp should be harboured among the plants. China Roses for flowering in pots may now be cut back or regulated : give fresh surfacing, but avoid battering the dressing down, which keeps out air from the plants. Everything which is to be cared for through the winter should now be looked after. Plants, however hardy, if they are in pots, require protection from frost. Dahlias should now be protected to keep them in bloom, but covering and uncovering them is scarcely worth while. Chrysanthemums will now require manure-water. M. T.



NEW ZEALAND.

OAMARU, OTAGO, NEW ZEALAND,
July 5, 1869.

SIR,—It is my intention in sending you these papers not to confine myself entirely to subjects under cultivation in the gardens here, but also to give a brief description of the climate, soil, &c., plants indigenous (as observed in their natural state, many species of which I have seen cultivated in the gardens of Europe), as well as those foreign, to New Zealand. I will proceed, then, to give a few remarks on the

CLIMATE.

By reference to a map of the world it will be seen that this place is situated in lat. $44\frac{1}{2}^{\circ}$ S., long. 171° E., or nearly. But in giving the following statement I would have your readers understand that what

is given here applies only to this district, and therefore is not to be regarded as applicable to the whole of the Middle Island of New Zealand, or even Otago itself. Since the establishment of telegraphic communications by Government in all the settled districts, we are enabled to know the exact state of the weather all over at the same time, as reported at the stations at nine o'clock A.M. daily.

The change of the temperature from month to month is gradual. January is generally the warmest and one of the finest months in the year. The mean temperature, taking an average of several years, is 64° , nearly the same as July in England. But in New Zealand, as in Great Britain, there is now and again an exceptional season. For instance, in January 1868 the weather was wet and unsettled, and continued so until February 3d, when the wind increased to a perfect hurricane, and the rain came down in torrents for nearly twenty-four hours, thereby causing the greatest flood ever known in New Zealand. At Sotara, seven miles from where I write, occurred the most lamentable event in connection therewith. The Creek, a small stream, rose so rapidly during the second night, that several dwellings and their occupants were washed away before they had time or opportunity to effect an escape, and nine persons thus perished. At the same time and place one of the finest orchards in the district was completely swept away, or so buried beneath the debris left when the waters had subsided, that scarcely a vestige of its former existence was recognisable.

Even here, where the garden and grounds have a considerable fall, and within a few hundred yards of the ocean, the lower portion of the orchard and flower-garden was submerged to the extent of 2 feet of water, and flowers and fruit-trees, as I thought at the time, hopelessly destroyed; but, strange to say, after passing through this watery ordeal they bore as prolific a crop this season as if nothing unusual had happened. By the violence of the same storm two large vessels, riding at anchor in the roads here, and loading wool for London, became total wrecks, and four lives were lost by the disaster.

I fancy some of your readers saying, "Shipwrecks and floods have no connection with horticulture: let us hear what you have got to say on that, and steer ships clear of the columns of the 'Gardener.'" If I were inclined to raise an argument on that head, I am disposed to think it could be sustained in the affirmative. But to resume.

The temperature of the month of February is almost the same as that of January. Mean temperature 65° ; it is generally very dry.

In March the temperature falls, but the weather is commonly as dry as the preceding month. Mean temperature 62° .

In April the weather becomes colder, more unsettled, and rainy. Mean temperature 57° .

The weather of May is much more wet than April; the air is sensibly colder; slight frosts often occur before sunrise. It frequently happens that we have some of the finest days in the year about the end of this month, calm temperature, and bright. Mean temperature 54° .

In June the weather is cold and chilly, but sometimes there are delightful days, rivalling those of summer—calm, mild, and clear—without a cloud to be observed. Mean temperature 49° .

July is in general the worst month in the year, the middle of winter, cold and wet. The ground retains the moisture longer at this season than at any other period of the year. I have seen a slight coating of snow on two occasions in this month, but in neither case did it lie over twenty-four hours. Mean temperature 48° .

In August the weather commonly improves; rather less rain than in July, and towards the end of the month the air becomes much warmer. Mean temperature 47° .

In September spring commences with fine genial weather; but it often changes on a sudden to bleak cold days, doing considerable damage to fruit-trees in blossom. Mean temperature 50° .

The weather in October is rarely the same two years in succession, occasionally very fine, but more commonly rough and cold, attended with showers of sleet or hail. This is the worst month in the year for the gardener. Mean temperature 54° .

In November the temperature rises rapidly, although the weather in many seasons is often very unsteady, generally less rain falling than in the two preceding months. Mean temperature 59° .

December is warmer and more dry than November—not so warm as January, but having nearly the same number of dry days. Mean temperature 62° .

The number of dry, wet, and showery days that occurred at Oamaru, during the year 1865, was as follows:—

	Dry.	Wet.	Showery.
January,	29	0	2
February,	25	$0\frac{1}{2}$	2
March,	24	1	6
April,	25	$2\frac{1}{2}$	$2\frac{1}{2}$
May,	18	3	10
June,	20	5	5
July,	21	$4\frac{1}{2}$	$5\frac{1}{2}$
August,	18	$3\frac{1}{2}$	$9\frac{1}{2}$
September,	19	2	9
October,	23	1	7
November,	$23\frac{1}{2}$	2	3
December,	28	1	2

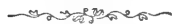
What are termed wet days are when the rain was of four hours' continuance or longer, and showery when it did not last four hours at one time.

In the previous year, 1864, no rain fell during the months of January, February, and March, and there was only one wet day in April in that year. 1866 was also a remarkably dry year. 1867 was more moist; but in 1868 more rain fell than in all the previous six years combined; and the present season, 1869, as far as gone, the wet and showery days nearly double those of 1865. Compared with other districts in New Zealand, this is the driest of any—nearly double the quantity of rain falls at Dunedin, 90 miles south, and about one-third more at Christchurch, some 150 miles north, of this place. Snow never lies twenty-four hours at one time, although in the interior of the district heavy falls often take place, lying from a month to six weeks. Sharp frosts often occur in January, and I can say, from experience, that the winter in the interior of the Middle Island of New Zealand is quite as severe as winter in the north of Scotland generally.

The following flowers and plants have stood in the garden and grounds without the slightest protection for five winters, and mostly all bloom vigorously throughout the season—viz., Geraniums and Pelargoniums, Fuchsias var., Indian Azaleas, Magnolias, Begonias, Camellias, and Myrtles. All the Cape and Japanese bulbs that were introduced have done remarkably well. The Peruvian Heliotrope, which is very susceptible of frost in England, has passed three winters out of doors without the slightest injury. Many of the tender annuals, as they are termed in Britain, flower better in winter than in summer. I shall not enumerate these in the present paper, but, with the permission of the Editor, shall continue the subject in a future number of the 'Gardener.'

ANDREW SIMPSON.

(To be continued.)



PEARS ON QUINCE STOCKS IN SCOTLAND.

SOME of your correspondents have expressed doubts as to the well-doing of Pears on Quince Stocks in your country. It is quite possible that in some soils and on some sites they do not succeed thoroughly, but they may do well in some places. The enclosed note from one of the most able pomologists in Scotland, and now living on the banks of the Tweed, will testify.

T. R.

The Standard Pears on the Quince in the orchard-house were sights to be seen. People sometimes ask how long such trees will live, Mine have been planted where they are twenty-one years, and some for a longer period. They are from twenty-four to twenty-seven years of age, and seem as likely to last as anything I have got.

R. O. B.

NEW PLANTS OF THE PAST MONTH.

THE meetings of the "Committees" at South Kensington on the 17th of August was the occasion of bringing together not only new plants but some new fruits as well. A great curiosity was exhibited in the form of a gigantic Aroid, which had been sent home to Mr Bull by Dr Seemann. The plant consisted of an enormous leaf some 7 feet in height, and a fine snake-like marked stem. The species was recognised by some of the botanists present, but it could not be named at the moment. A first-class certificate was awarded to Mr Bull for the Aroid, and also for two handsome forms of *Encephalartos* named *grandis* and *plumosa*, and also to *Macrozamia excelsa*, another good contribution to these highly ornamental plants. Mr Green, gardener to W. Wilson Saunders, Esq., received a first-class certificate for a new and graceful South African species of *Asparagus*, trained on a strong cord, to which it readily attaches itself. Mr Green deserves much praise for this and several other handsome ornamental plants of a similar character which he has introduced of late.

Messrs Kelway & Son of Langport, who on this occasion exhibited some grand spikes of *Gladioli*, received a first-class certificate for a fine new seedling named *Medina*, white, tinged with faint rose, a bold and finely-shaped flower, forming a grand spike—also for *Cherub* and *Accius*; and a second-class certificate for *Freemason*, a pinkish carmine flower of good properties. Mr William Chater, Saffron Walden, was awarded a first-class certificate for a new dwarf form of *Ageratum* named *Imperial Blue*. In addition to a habit unusually dwarf, it gives an admirable hue of colour, and is remarkably free blooming. First-class certificates were awarded to Messrs Downie, Laird, & Laing, Edinburgh and London, for a fine hybrid nosegay *Pelargonium* named *Lady Hawley*, of a rich vermilion-red hue, excellent pip, and large truss; and for a fine zonal variety named *Stanstead Rival*, dark scarlet, with a tinge of purple in the petals, excellent trusses of bloom, and a neat habit. A first-class certificate was awarded to Mr William Paul, Waltham Cross, for *Euonymus flavescens*, a good addition to this useful class of ornamental ever-green shrubs.

To Mr C. J. Perry, Castle Bromwich, Birmingham, first-class certificates were awarded for *Verbena* Ada King, with large pure white flowers of fine substance and excellent truss; and for Thomas Lawden, pinkish rose, with crimson eye, a finely-shaped flower. Mr Eckford, The Gardens, Coleshill, Berks, also received first-class certificates for the following *Verbenas*: *Eclipse*, very dark scarlet, of fine form and substance; Harry Eckford, deep crimson, fine pip, and good truss;

and Lady Anne Speirs, large pale rose centre, edged with white, showy and fine.

On this occasion the Fruit Committee awarded a first-class certificate to Mr Dry, Hayes, Middlesex, for a dish of a new Plum named Dry's Seedling. It is a large oval purple-coloured Plum of excellent flavour, early, having been grown as a standard. Mr M'Laren of Ash Common, Surrey, received a first-class certificate for a seedling double-bearing Raspberry, for its robust habit, fertility, and size of the fruit. Mr J. R. Pearson of the Chilwell Nurseries, Nottingham, sent to this meeting several varieties of seedling Grapes, three of which were considered by the Committee to possess some merit, and recommended that their cultivation should be continued. One variety had white berries and a Frontignan flavour, the bunch long; another had the flavour of the Muscadine; and a third resembled the Black Morocco.

The Committee met again on the 7th of September. Mr A. Parsons, Danesbury Gardens, Wellwyn, received first-class certificates for two very singular forms of *Lastrea*—*L. filix-mas ramisissisima* and *L. filia-mas parvula*; the last named had a diminutive habit of growth not unlike Parsley. In the way of Ferns, Messrs J. & C. Lee, the well-known nurserymen of Hammersmith, received a first-class certificate for a very fine variety of *Adiantum capillis-veneris*.

The same firm also received a first-class certificate for a fine Hybrid Perpetual Rose named Clemence Raoux; colour pale salmon, tipped with deep rose, large, full, and unusually fragrant.

Mr Eckford of Coleshill Gardens received a first-class certificate for a seedling hybrid Ivy-leaved Pelargonium named Lady Edith, of robust habit, the foliage marked with a well-defined zone, colour of the flowers purplish rose, and a fair-sized truss. The same exhibitor received a similar award for *Verbena Countess of Radnor*, pale lilac ground, having a dark shading in the centre, a distinct and pretty flower.

Mr Charles Turner, Slough, received first-class certificates for *Dahlia*s *Toison d'Or*, a bright-yellow self flower of fine properties—and *Harvard*, lilac rose, a very pleasing flower; Mr Parker, Wingfield, for *Queen of the Yellows*; and Mr Burgess, Chelsea, for *William Lund*, a fine dark maroon self.

Mr William Bull was awarded a special certificate for a good specimen of his beautiful *Melastomad*, *Lasiandra macrantha*, certainly a fine new introduction.

To continue this record of new plants, reference must be had to the Exhibition of the Royal Caledonian Horticultural Society at Edinburgh on September 8th. On this occasion several first-class certificates were awarded to new plants as under:—

To Messrs P. Lawson & Son for *Biota orientalis elegantissima*, a

fine addition to the Variegated Coniferæ ; and for *Ilex Lawsoniana*, a distinct variegated Holly of great promise. These were selected from a very interesting group of seedling Coniferæ and other hardy ornamental plants, among which *Taxus adpressa variegata* and *Cupressus Lindleyana variegatus* appeared to be thoroughly distinct and good. Also for gold and bronze zonal Pelargoniums David Webster and Richard Dean, both with finely-marked leaves and good habits ; also for Bangholme Bower, a dwarf-growing silver-edged variegated Pelargonium, likely to be of value as an edging plant ; to variegated zonal Pelargonium John Stewart, a golden-edged variety in indifferent condition, and, as shown, not so good as others in cultivation ; and for *Lobelia Tynningham Blue*, a fine dark form of *L. erinus speciosa*, with large bold flowers, remarkably free, and of good habit.

Messrs Downie, Laird, & Laing received first-class certificates for gold and bronze Pelargoniums *Prima Donna*, *Imperatrice Eugenie*, Mrs Lewis Loyd, and Mrs Lowndes, all very fine and distinct ; and for Hollyhock Richard Dean, of a rich glowing dark-crimson hue, very full, and of fine shape.

First-class certificates were also awarded to *Viola lutea pallida*, a sulphur-coloured form of *Viola lutea*, but with flowers three times the ordinary size ; to bedding Pansy Purple King, a very common form, frequently met with in gardens ; and to *Viola cornuta variegata*, the leaves slightly edged with creamy white.

Of the new fruits sent to the Edinburgh Show a first-class certificate was awarded to Messrs Peter Lawson & Son for Webster's Gage Plum, raised by Mr Webster of Gordon Castle Gardens from a cross between Coe's Golden Drop and the Green Gage, a fine pale Plum of large size, plump, and of exquisite flavour. A seedling Grape, exhibited by Mr William Melville, Dalmeny Park Gardens, obtained from a cross between Snow's Black Muscat and Lady Downes, was considered to be of a very promising character.

R. D.



NOTES ON HARDY HERBACEOUS PLANTS.

PRIMULA.

(Continued from page 410.)

P. denticulata is a species of considerable interest and beauty. It is rather vigorous in habit, with large oblong lanceolate toothed leaves, hairy on both sides, but densely so beneath, especially on the veins. The stoutish flower-stalks rise to the height of 9 inches or a foot in luxuriant individuals, and terminate in compact umbels of many small

bright lilac flowers. It is a very hardy and accommodating species ; for though usually classed among Alpines, it succeeds very well in the open border in most places where light rich loam and a dry bottom exist ; but it is undoubtedly most at home on well-drained rock-work, where it can be liberally supplied with water during the growing season. Good rich loam, a little peat, and abundance of gritty sand, form the most fitting compost for it on rock-work, or in pots if it should be cultivated in them, as it occasionally is, for the decoration of the greenhouse and conservatory in spring. It bears a little forcing, and may be had in bloom a month or six weeks earlier than the natural flowering period by being placed in gentle heat in January and February. The flowers appear in April, May, and June. Native of the Himalaya.

P. denticulata var. *nana*.—Under this name Messrs Backhouse of York recently introduced from the Himalaya a sort of *Primula* that must be considered a decided improvement on the older *P. denticulata*, if it is not indeed entitled to be regarded as a distinct species. The leaves are similar in form and texture to those of *P. denticulata*, the flower-stalks are stouter, and the dense umbels of bluish-purple flowers are nearly twice as broad, and the flowers are conspicuously marked with a yellow eye. It is a vigorous, hardy plant, and forms a striking object on rock-work or in pots. The same soil and treatment as for *P. denticulata*.

P. cortusoides is a very pretty species from Siberia. It forms compact tufts of bright green heart-shaped bluntly-toothed leaves ; the flower-stalks, slender and erect, are slightly shaggy with long soft hairs ; the umbels are compact and rather large, and the flowers deep rose. It is a very showy species, and best adapted for the rock-work ; rarely very satisfactory in the open border, except in the most favourable situations—not but that it is perfectly hardy as regards capability of resisting cold, only it requires a freer drainage at all times than generally can be secured at the ordinary ground-level. In summer, however, it will take astonishing supplies of water while making growth if the drainage is good. Sandy rich loam suits it best. Flowers throughout May, June, and July. A more robust and darker-flowered variety named *P. cortusoides amœna* is in cultivation, but rare ; it is remarkably distinct as a variety from this species. There is also a white variety of more diminutive growth, but still more rare, well worth cultivating, but difficult to keep up.

P. amœna is perhaps the finest of the *denticulata* section. The leaves are of the same form as those of *P. denticulata*, but narrower and less acutely toothed ; the flower-stalks are stouter, and rise to the height of 9 inches or a foot ; the umbels are larger, as are also the

individual flowers, which are bright lilac, with a clear pale eye. A moist but well-drained position on rock-work is the most suitable for it, and peat and loam, with plenty of gritty sand, the most congenial compost. Flowers in March, April, and May. Native of the Caucasus.

P. erosa, syn. *Fortunei*.—This is another near relative of *P. denticulata*, but quite distinct. It is about equal in stature, but the flower-stalks, which are rather stouter, are invariably mealy, except in starved individuals suffering from drought and continuous exposure to the sun. The flowers, which are somewhat larger than those of *P. denticulata*, are purplish lilac, with a conspicuous yellow eye. It is a charming rock-plant, requiring the same soil and treatment as the others in this section. Flowers in March and April.

P. farinosa is a species of altogether another type from any of the foregoing, but not less attractive and beautiful. It is compact, dwarf, and somewhat tufted in habit. The leaves are small, covered all over—on the under side densely—with mealy down of musky odour; the flower-stems rise 5 or 6 inches above the leaves, bearing many-flowered umbels of deep rose-lilac or purple yellow-eyed flowers. It is a beautiful rock-plant, and should be provided with a well-drained but moist and moderately shady spot; in the growing season it can hardly be kept too moist. The compost most congenial to it is mostly peat, a little loam, and abundance of sharp sand. Flowers in May, June, and July. Native of Britain and other parts of Europe.

P. Scotica, confined, in Britain at least, to one or two localities in the north of Scotland, with broader leaves, shorter and stouter flower-stems, and broader and shorter lobes to the corolla, which is purple, with a yellow eye, but in all other respects resembling *P. farinosa*, is by botanists considered as only a well-marked variety of that species.

P. farinosa var. *acaulis* is a remarkable and interesting variety, being almost destitute of flower-stem, and forming the small umbels of flower scarcely in relief of the mealy white foliage.

P. longiflora is closely related to *P. farinosa*, but is scarcely so showy. The style of growth and mealy foliage are similar, but the little umbels are less compact, and the flower-tubes, as implied in the specific name, are very long; it is, in fact, more interesting and pretty than showy. The soil and treatment recommended for *P. farinosa* are what this species requires also. Flowers bright red in May, June, and July. Native of the Alps.

P. minima.—This is quite a little gem, very diminutive, with small wedge-shaped, smooth leaves, rather boldly notched or toothed at the tops. The flower-stems are short, bearing usually only one bright rose-coloured, white-eyed flower, an inch or more in diameter. It is best adapted for rock-work, and should have the same soil and treatment as

recommended for *P. farinosa*. Native of the mountains of Switzerland and the Pyrenees. Flowers in April and May.

P. intermedia.—This excellent *Primula* is reputed a hybrid between *P. minima* and *P. ciliata*. It is of vigorous growth, and resembles some of the varieties of *P. auricula* in its smooth pale-green foliage, which is destitute of farina. The flower-stems are stout and erect, about 9 inches high, and support umbels of bright purplish-crimson flowers. Adapted for either the rock-work or mixed border in rich light sandy loam, well-drained but moist. Flowers in April and May.

P. Stuartii.—This is perhaps the finest of the yellow-flowered *Primulas*. It is a vigorous species, with long lanceolate acute leaves, sharply serrated, and covered below with pale sulphur-coloured meal. Flower-stems also mealy, rather stout, about 1 foot high, bearing an involucrate umbel composed of many large yellow flowers; involucre composed of many smallish leaves. The rock-work is most congenial to this species; it delights in abundant moisture in the growing period, but in winter it is very impatient of wet. Flowers in June and July. Native of Nepal.

P. Sikkimensis.—This is one of the best of the yellow-flowered species, and is very distinct from the last-named. The leaves are oblong, rather blunt at the points, unequally toothed. The flower-stems rise to the height of 1 foot or more, bearing rather loose umbels of large pendant flowers of a pale-yellow or sulphur colour. Succeeds best on rock-work well drained, in soil the same as recommended for *P. Stuartii*. It is, however, very impatient of damp in winter, though equally fond of it in summer, and in cold wet localities it would be advisable to keep a plant or two in pots in a dry cold frame to prevent loss of stock. Flowers in May and June. Native of the Himalaya.

P. Palinuri is another very beautiful yellow-flowered species. It grows to the height of about 9 inches or a foot, with smooth serrated spatulate leaves and a stoutish flower-stem bearing a lax umbel of large yellow nodding flowers. Succeeds in light rich loam, moist, but well drained, either on the open border or on rock-work. Native of the south of Europe. Flowers in April and May.

P. verticillata.—This is a beautiful and elegant species, with the peculiarity as implied in the specific name of bearing the flowers in whorls. The leaves are oblong, almost lanceolate, sharply serrated, and mealy underneath—tube of the corolla long, and the colour yellow. It is a very desirable species, but requires the protection of a dry cold frame during winter in this climate. Flowers in March and April. Native of Egypt. Same soil and treatment in summer as the foregoing.

P. Munroi is a very distinct and beautiful species. It is pretty

robust in growth. The leaves are longish ovate, slightly cordate at the base. Flower-stem stout and erect, about 9 inches high, with a compact umbel of large white flowers. Very handsome on rock-work in gritty peat and loam ; kept moist in summer and dry in winter. Flowers in May and June. Native of Northern India.

P. involucrata is nearly related to the last-named species, but generally considered inferior to it. It is not so vigorous. Leaves in shape and texture similar, but not cordate at the base ; flower-stems weaker, and the umbel fewer flowered. Flowers white in April and May. Native of Northern India. Soil and treatment the same as for *P. Munroi*.
W. S.



THE CULTIVATION OF HARDY FRUITS.

THE APPLE.

(Continued from page 397.)

ANOTHER great enemy to the cultivation of the Apple is the *Anthonomus pomorum*, commonly known as the Apple weevil. This small insect, which is from one and a half to two lines in length, has often been found to destroy almost the whole crop of an orchard. It finds a shelter under the bark of the tree or amongst the soil at the roots thereof in winter : when spring has come in, and the buds begin to get soft and full of sap, the female parent ascends thereto, and with her proboscis bores a hole into the bud, whereby she is enabled to deposit a single egg in every blossom. As she produces a great number of eggs, a very few females are necessary to destroy every bud upon a large tree. According to the state or condition of the weather these eggs will be hatched, and produce the grub or larva of the weevil from the middle of April till the first or second week of May. As soon as they have arrived at this stage of existence so soon does their work of destruction begin. The generative parts of the blossom are always the first to suffer, although eventually the whole contents of the bud are often devoured. It is very rapid in its transformation from one stage of existence to another, as a few days only elapse until it is changed into the beetle form. In this stage it remains, and during summer and autumn lodges upon the tree and feeds upon the foliage. Ere winter has set, it secures for itself a habitation under the loose bark of the tree, which position it generally prefers ; but should no such lodgment present itself, it seeks repose amongst the soil and roots. The cure recommended by most of our writers is the application of spirits of tar to the trunk and branches during

winter. Of its efficacy I have not the smallest doubt whatever, but I should very much fear the result of such an application upon the general health and wellbeing of the tree. I should rather prefer to have the whole of the loose bark removed during winter, and thereafter wash the whole tree with a good hard brush and soap and water. Thereafter remove all the soil to the depth of 1 inch all round the tree where there is a possibility of any of them having fallen during the operation. This done, I have great faith in its beneficial results.

The *Rhynchites Bacchus* or purple Apple weevil proves often very injurious to fruit-trees about midsummer, when the fruit is half swollen. Having bored a hole into the interior of the Apple, it therein deposits its eggs, which in the course of a few days produce a whitish sort of grub. It feeds upon the flesh of the Apple for a few weeks; and about the beginning of September it leaves and buries itself in the soil, where it remains for the winter. A good plan to destroy it is to shake a quantity of quicklime underneath the tree about the month of June and July, thereafter shaking the tree to make them fall, when the effects of lime upon them while in the grub state will destroy every one of them. All fruit which has fallen through their instrumentality should at once be gathered and destroyed, as by so doing a number of them are sure to perish.

The *Tenthredo testudinea*, or Apple saw-fly, is another enemy which not only destroys the blossoms but also the fruit. About the end of May it deposits its eggs on the blossom, which by the end of June or beginning of July have assumed their larva form. The larva thereupon makes a regular attack upon the flesh of the fruit, more particularly upon that portion of it next the core. In the course of a short time, through the injury sustained by the Apple, it falls to the ground, whereupon the larva sets to work to eat himself out of his prison. This accomplished, it commences to make a cocoon for itself in the earth, where it remains till the following spring. Gathering the fallen Apples and consigning them to the fire is the simplest and best mode of destroying them, as at that season of the year the fruit is the only place where they are to be found. Removing the soil for a few inches deep round the trees in winter may prove a very great help to destroy them.

The *Carpocapsa pomonella*, or codling moth, is another enemy to be contended against, and in its habits and depredations it much resembles the purple Apple weevil. It begins its work much earlier in the season, however, depositing its eggs about the middle of May either on the stalk or in the eye of the young fruit. Shortly thereafter the grub makes its appearance, and eats its way into the Apple, where it remains and obtains its food for several weeks. The fruit so attacked usually falls to the ground, where a cocoon is gener-

ally formed, and a change thereafter into the chrysalis form. Shortly after it appears in its perfect state as a moth, and is succeeded by another generation of grubs. The same means must be adopted to destroy it as already recommended in the former cases—viz., destroying the affected Apples and cleaning the stems of the trees, as well as removing the soil around the roots in winter.

The *Rhynchites alliaria*, or stem-boring weevil, at times proves very injurious to nurserymen and other propagators of the Apple by depositing its eggs in newly-grafted scions, and thereafter cutting them over in early spring. It is of a steel-blue colour, and not more than one and a half lines in length. This is perhaps the most curious and scientific enemy with which we have to contend, and it may prove interesting to many to give a detailed account of its operations as noticed and recorded by Kollar. He says: "As soon as she has reached the most suitable part of the shoot, she marks the place by a prick or by a small cut where she intends to cut off the bud or shoot. She then recedes about a line upwards and begins (with her head turned downwards) on the side that is not next the tree to bore it with her proboscis till she reaches the middle of the shoot. With it she also widens the chamber and prepares it for her offspring. She then places herself over the entrance and lays an egg, which is pushed in by the proboscis and conveyed to the proper place. This operation lasts an hour. Immediately after, the female returns to the former place to cut off the shoot, moving it from the one side to the other with her proboscis until she has cut it to a certain depth; she then gives some decided thrusts, which she continues without fatigue till the shoot only hangs by the under part. When she observes this she gets up on the point of the twig to make it fall over by her own weight. It not unfrequently happens that it falls immediately, the shoot having previously been so cut as to remain attached to the stem only by the bark. If the beetle, however, finds that the pierced shoot does not fall, she turns back to labour again at the same place, and cuts still deeper into the branch, and if she is not able to divide it, she gets up once more to the extremity, by which means she generally succeeds in bringing the separated branch to the ground. When this labour is over she feeds upon a leaf, scraping off the epidermis, which serves her as food. After the beetle has rested for an hour she goes again to work, and if there be still a place for the reception of a second egg on the shoot she has divided from the stem, she bores a second hole with her proboscis near the first, and laying another egg, pushes it into its proper place. When the twilight comes on she reposes under a leaf for the night. Next morning, as soon as the sun is up, the female beetle again begins her work, and often continues this employment until after the end of June, so as

by this means to leave a numerous offspring behind her. The egg in the shoot is hatched in the course of eight days, and a white grub with a black head then makes its appearance. It feeds upon the pith of the shoot, and if the shoots fall off it arrives at its full size in four weeks. It then leaves its dwelling and buries itself some inches deep in the earth. It there prepares itself a roomy chamber, in which it remains till spring, when it again appears as a steel-blue-coloured weevil." To destroy this enemy, all the fallen shoots ought to be removed at once and burned, and in winter the soil ought to be removed to the depth of 5 or 6 inches. With care and attention to these two particulars, and at the same time burning the soil removed, the enemy may at once and effectually be removed.

Aspidiotus conchiformis, or Apple-tree mussel-scale, is most prevalent upon trees trained upon the wall, yet, nevertheless, it is sometimes to be found upon standards also. It is very small, and invariably of the same colour as the bark, so that its presence is not easily detected. It attacks both the trunk and branches, and proves often very destructive. The scales are of a dark shining appearance, and sometimes so numerous as to be laid layer above layer. They sometimes extend even to the fruit, and when this is the case, they entirely destroy its appearance. Many methods have been adopted for its destruction, but the most simple, and perhaps the least injurious to the tree, is to scrape the bark thoroughly, and thereafter to wash the branches with soft soap and warm water, scrubbing it well with a hard brush. This may be done in winter, and again in spring. Let all the soil, to the depth of an inch, be removed under the tree, and burned, and the chances are that a second application may not be necessary.

There are several varieties of the caterpillar which prove very injurious to Apple and other fruit trees. The principal ones, however, are the *Episema cæruleocephala*, or caterpillar of the figure of 8 moth; the *Hibernia brumata*, or caterpillar of the winter moth; the *Zeuzera æsculi*, or wood-leopard moth caterpillar; and the *Cossus ligniperda*, or caterpillar of the goat moth. Each and all of these often prove very injurious to our fruit-trees in spring and summer, by either boring into the wood under the bark, or eating and otherwise destroying the foliage. Some of them even attack the buds, blossoms, and young fruit. The most common one, however, is the *Yponometa malivorella*, or caterpillar of the ermine Apple moth, which covers the shoots and branches with thick webs in early summer. In these webs it makes cocoons, which change shortly after into a chrysalis, which, by the beginning of July, produces the perfect moth. Its nourishment is entirely derived from the leaves of the tree. The best and surest method to destroy the whole of this family is to hand-pick them,

at the same time having quicklime pretty freely sprinkled around the bottom of the tree, so that those which fall may be destroyed thereby.

JAMES M'MILLAN.

(*To be continued.*)

P.S.—I notice in my last article (see p. 397) that I have very inadvertently made a slight mistake, which I hasten to rectify. In speaking of the receipt for destroying mealy bug, as given to me by Mr Rose, I ought to have written, "To one part spirits of tar, one part paraffin, must be added two parts of train-oil." In place of the word "paraffin" I have written "turpentine;" and in case it may lead to any mistake, I have now rectified it at the earliest opportunity.

J. M'M.



THE HAMBURG INTERNATIONAL HORTICULTURAL EXHIBITION.

For this event great preparations were made. £16,000 was spent in laying out splendid grounds and making suitable erections for the occasion. Committees were appointed in every nation in Europe, and exhibitions invited. Our own Queen gave a Silver Cup to be competed for by Grape-growers. The terms on which this was to be done were forwarded to us, along with others—*i.e.*, three bunches of distinct sorts of Grapes. I entered for this cup, and got a certificate that I had entered properly, and sent the Grapes accordingly, with what result the following letter, which I addressed to the Council, will show; my reason for thus making the matter so public being to guard others from becoming the dupes of such perfidy in the future. The sole object of the change from three bunches to a collection was the determination to award the Cup if possible to one of their own countrymen, entirely irrespective of merit; but Mr Meredith was able so to shift his ground—having a great many grapes with him—as to make such a deed too glaringly ridiculous, and got the Cup, which, as the only individual who complied strictly with their printed rules, ought to have been awarded to me, as is pretty clearly indicated by the following extract from the leader on the subject in 'The Chronicle': "There was an unfortunate misunderstanding about the terms for the Queen's Cup, as it was supposed it was to be given to the best specimens of Grapes" (it was no supposition at all, it was clearly in their schedule and advertised in 'The Chronicle'—in the one as three bunches, in the other as three bunches distinct sorts); "but the terms were altered at the *last moment* to 'an assortment.' There was nothing, however, to come the least near the British Grapes with which Mr Meredith won the Cup, though in all probability Mr Thomson would have been successful had not the terms been altered. His three bunches were quite wonderful, and excited immense interest."

COPY OF LETTER SENT TO DR E. GOTZE.

THE GARDENS, DALKEITH PARK,
September 2d, 1869.

SIR,—I sent my son to your exhibition with the *three* bunches of Grapes I entered for the Cup offered by the Queen of England, and I have just received the

following telegram from him: "Meredith first. Been disqualified. Prize altered from three bunches to a collection."

If I understand this right, it means that you have given the Cup to a large collection of Grapes instead of three bunches; and on all the principles of fair dealing and common honesty, I protest against such a change, and claim the Cup, if my three bunches were the best that were exhibited, and properly entered as *three* bunches for the prize in question.

The 'Gardeners' Chronicle' has been the English organ of the exhibition, and on the 17th of July the following paragraph appeared in it: "We learn *officially* from Hamburg that the Queen's Silver Cup is to be given for the best *three* bunches of Grapes." On the faith of this announcement, I wrote and entered *three* bunches for the Cup, and added, that if I was in error in supposing it was to be given for *three* bunches, I begged to be corrected. The only reply I got was a certificate that I had entered them, and a card to place on them, which was an acknowledgment that I was right; and I sent three bunches of Grapes, weighing more than 13 lb., and at great expense. And I now demand an explanation of what to me admits of none, except that of keeping faith with me, or any one else more deserving who may have complied with your rules.

I here beg to state that I will accept of no other prize from your Society for my Grapes in the place of that for which they were entered.

Awaiting your early reply, I am, your obedient servant, WM. THOMSON.

DR E. GOTZE, Secretary to the Council.

I have reason to believe I was by no means the only individual who had cause to complain of the way they were treated on the occasion referred to; and all exhibitors, whether natives or foreigners, were compelled to pay 18s. on the first day of the exhibition before they could gain an entrance to see their own productions—a piece of extortion never heard of before—and many got their plants, or cuttings from them, stolen altogether.

WM. THOMSON.



ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

Great International Fruit and Flower Show at Edinburgh, September 8 and 9.

It must be confessed that, in every sense of the word, that was one of the grandest exhibitions of Grapes ever held; notwithstanding, there was a falling off in other fruits. Grapes were not only largely represented, but they were of the finest quality; and in regard to variation, it was a very interesting exhibition, as so many kinds were produced, giving a good opportunity to compare sorts. Some of the plants were finely shown, and were worthy the best exhibition ever held. Hollyhocks, both in spikes and cut flowers, were grand. Dahlias had suffered from the recent frosts.

But the fruit was yet *the* feature of the Show, and in the large room in which the several lots were arranged, there the crowd of visitors congregated from the opening of the Exhibition till its close. In a space so restricted as ours it is impossible to go into full details of what was exhibited on this occasion, so we must confine ourselves to referring to some of the leading classes about which the popular interest appeared to be largely attracted. One of the most singular features of the show was the bringing to the fore in such a conspicuous manner of

an entirely new exhibitor, Mr George Johnston, gardener to Earl Strathmore, Glamis Castle. The victories gained by Mr Johnston were not only numerous, but in many instances singularly decisive. It may here be stated that the Grapes shown by Mr Johnston were from Vines three years planted, and growing in aerated borders. Whether this system be correct or not (and high authorities are divided on this point), there can be no doubt but that on this occasion the principle of aerated borders has produced splendid results; though whether these results are of a fitful, and consequently uncertain, character, or whether they are certain and enduring, remains to be seen. It is, however, a remarkable circumstance that Mr Fowler, who was all-powerful four years ago, was not an exhibitor on this occasion, his borders being aerated.

Mr Johnston had a decisive victory in the class for eight varieties of Grapes—one bunch of each. He had Black Morocco, very fine indeed; Raisin du Calabre, also fine; Lady Downes Seedling; Duchess of Buccleuch, a grand though small-berried Grape, perhaps unsurpassed for flavour; Black Hamburg, Muscat of Alexandria, Muscat Hamburg, and Alicante, very finely finished. 2d, Mr Bannerman, gardener to Lord Bagot, Rugby, with Alicante, Gros Guillaume, Muscat of Alexandria, Lady Downes, Black Teneriffe, Mrs Pince, West's St Peter's, and Black Hamburg. 3d, Mr Thomson, Dalkeith, with Black Hamburg, Muscat of Alexandria, very fine; Mrs Pince, Trebbiano, Golden Champion in fine condition, and looking all over a first-class Grape; Lady Downes, the new white Lady Downes, to all appearance a splendid late Grape, and Alicante. Messrs Lane & Son of Berkhamstead also exhibited. With four kinds of Grapes, one bunch of each, Mr William Bryden, gardener to Sir William Wallace, Lochryan House, Wigtownshire, had an excellent lot, well up in size both in bunch and berry; his Golden Hamburg was quite first-rate, and so was Alicante, with very good Bowood Muscat and Muscat Hamburg. Mr McConnochie, gardener to A. Smollett, Esq., Cameron House, Dumbartonshire, had Black Morocco, Muscat of Alexandria, Black Prince, and Hamburg, very good and uniform. Mr William Meade, gardener to Raikes Currie, Esq., Minely Manor, had Muscat Hamburg very fine in his group. Mr Bannerman had Gros Guillaume in good order; Mr Meredith, who was not placed, had Hamburg and Lady Downes, good; and Mr Lees, Tynninghame, had also a fair collection. In the two-bunch Black Hamburg, two Muscat of Alexandria, one bunch of each of the above named, one Alicante, one Lady Downes, one flavoured white, Duchess of Buccleuch, one flavoured black, Muscat Hamburg; one finest bloom, the Alicante just referred to, and a collection of Grapes, not included in other classes—in these ten different classes, wonderful to relate, Mr Johnston was first. All his Grapes showed excellent cultivation, and for a young exhibitor the wonder is how he brought and staged them so safely without destroying the bloom. If there was one bunch more than another that created almost a sensation, it was the Alicante, so finely grown in the first instance as to assume model proportions, and then so densely covered with bloom as if it had been under the influence of a "heavy dew" out of doors. In these classes, keeping out the collection of Grapes and the bloom, there were from seventeen to twenty-four entries, showing how well the prizes were contested. Mr Bryden took second prize with good Muscat of Alexandria. Mr Loudon, gardener to T. Barnes, Esq., Salop, had the best ripened bunches, but the berries were small. Mr Kirkpatrick, gardener to Lord Abercromby, Airthrey Castle, had fine bunches; and so had Mr Ingram, Alnwick, and Mr Lees. Mr Meade and Mr Ingram had good single bunches of Muscat of Alexandria. Mr Bannerman had a good second lot of Lady Downes. Mr Brunton, gardener to Sir D. Kinloch, Gilmerton; Mr Fraser, Biggar; and Mr Meredith, also had good dishes.

In Black Hamburg Mr M'Connochie had a nicely-formed bunch, which took second place; Mr James Hannah, gardener to John Duncan, Esq., Burnhead; Mr J. Anderson, gardener to J. F. Webb, Esq., Newstead Abbey, Nottingham, and others, had fine fruit. Mr Wm. Melville, gardener, Glenlee, New Galloway, had the second prize for Alicante; Mr George Greig, gardener to Wm. Christie, Esq., Greenpark, Liberton, and Mr M'Millan, also showing well. For Hamburgs in pairs there were twenty-three entries, Mr Walker Bassett, gardener to J. S. Philips, Esq., Cheadle, running the winner very hard for position, backed up well by Mr Stevens, Trentham. The finest-flavoured Grapes in white and black, out of respectively nineteen and seventeen entries, were declared to be Duchess of Buccleuch and Muscat Hamburg; Mr Jno. Brunton taking position after Mr Johnston. The heaviest black Grape (Black Hamburg, 6 lb. 4 oz.) came from Mr James Douglas, gardener to F. Whitbourne, Esq., Loxford Hall, Essex, and Mr Laing—both Hamburgs; and the heaviest white was a Broddingnagian Syrian, weighing 16½ lb., and in good general order. This came from Mr James Dickson, gardener to John Jardine, Esq., Arkelton. The Messrs Lane had a wonderfully large bunch of Muscat of Alexandria. Muscat Hamburg was well shown by Mr David Morrison, Mr Bryden, and by Mr James Turner, gardener to Mark Sprott, Esq., Riddle. For the best pair of Mrs Pince's Muscat, Mr Meredith had extra fine samples, large in size, fine in formation of bunch, and well finished—much better than any exhibited by his compeers. It looks valuable as a variety. Mr James Douglas and Mr John M'Donald, gardener to Mrs Sharp Erskine, Dunimarle Castle, had the other lots. Mr Thomson had the best assortment of varieties of Black Hamburgs, comprising Richmond Villa, a small but finely-hammered berry; Old Black, a little larger and redder in the tinge; a seedling black, much inclined to shoulder, fine bloom; Champion, smaller than we have seen it; and Dutch. Mr Johnston, who had the second collection, had the Mill Hill variety, fine in colour, in addition to some of those named above. In the collection of Muscats Mr Ingram had the largest bunches, and Mr Thomson the smallest in the ripest condition. The lots comprised Escholata, loosely arranged in bunch; Tottenham Park, Bowood, Candia, Tynninghame, the least ripe of the group; and Canon Hall. Mr Thomson also exhibited the White Lady Downes in very promising condition, but unripe.

Respecting the exhibition of Grapes, the 'Nottinghamshire Guardian' says: "Messrs Lane & Sons, the great nurserymen of Berkhamstead, are generally considered first-class Grape-growers. They entered splendid Grapes in eight classes, and gained only one third prize; while many who went down with high hopes of success got no prize at all. In the contest for flavour, it will be seen the prizes fell to the Muscat Hamburg and Mr Thomson's Duchess of Buccleuch. This, in point of flavour, is doubtless an exquisite Grape, and it is also a free-bearing kind, with bunches of good size; but the smallness of the berry is, and ever must be, a drawback upon its general cultivation. Mrs Pince's Black Muscat, which some of our friends are finding much fault with, was shown in splendid condition by Mr Meredith. We believe it to be strictly a winter Grape; for, planted side by side with the Muscat of Alexandria and other kinds, with the advantage of bottom-heat to the border, we find it to be still some weeks from being ripe, while the Muscats are shrivelling. We are also convinced the variety requires ample room for development, and that, grown upon the extension principle, a Vine or two to a house, it will prove the best and most useful New-year's Grape in cultivation. We ask those who are condemning it prematurely to 'cease their railing,' and our prognostication will be verified."

In the collections of fruits, which formed a very fine feature of the Exhibition,

twenty sorts, by Mr Stevens, gardener to the Duke of Sutherland, Trentham, won the first prize. In this group were good Providence and Queen Pines, very fine Black Hamburg Grapes, excellent Muscats, and some others of less note ; a beautiful cluster of Banana, in matured condition, Brown Turkey and Lee's Perpetual Figs, the usual varieties of Peaches and Nectarines, good Persian and Trentham Hybrid Melons, Coe's Golden Drop Plum, Moorpark Apricot, Raspberries, Strawberries, and Cherries. The small fruit was shown in dishes, the large in boxes, and the whole was well arranged. The second prize was awarded to Mr Johnstone, gardener to the Earl of Strathallan, who had magnificent Grapes. Mr Thomson, Dalkeith, was placed third with a beautifully-arranged assortment in a square box, divided into several compartments. It consisted of Queen and Prickly Cayenne Pines, a pair of Dalkeith Park Melons, fronted with Golden Champion, in grand order as to form and colour ; then Alicante, Muscat of Alexandria, Mrs Pince's, Buckland Sweetwater, and Black Hamburg, all very good. In front of these again were good Victoria and Prince of Wales Plums, Bellegarde Peaches in fine style, Pitmarston Orange Nectarine, and several of the small fruits, which latter weakened the collection considerably. Mr Ingram, gardener to the Duke of Northumberland, Alnwick Castle, was placed fourth ; he put up a most creditable assortment.

In the collection of 16 sorts, Mr Mathieson, gardener to the Hon. Mrs Villiers, Tulliallan, had a very fine assortment, nicely arranged, and shown in chip baskets, suitably garnished ; it comprised excellent Black Hamburg, Muscat, and Black Morocco Grapes, Scarlet Gem Melons, extraordinarily fine Barrington, and very fine-coloured Early Crawford and Royal Peaches ; Violet Hative and Tawny Nectarines, the latter in grand colour ; Moorpark Apricot, Kirke's Seedling, and Magnum Bonum Plums (the latter three grown in pots), and Morello Cherries. Mr Lees, gardener to the Earl of Haddington, Tynninghame, had good Hamburg and Muscat Grapes ; some fine Peaches, Apricots, Plums, and Pears. Mr Temple, gardener to J. Balfour, Esq. of Balbirnie, had, in addition to good Grapes, fine Peaches, Nectarines, Plums, and a Trentham Hybrid Melon. Mr John Laing, gardener to R. Cathcart, Esq., Pitcairnie, had among his lot good Brown Turkey Figs. Mr James Philips, gardener to J. H. Barton, Esq., Stapleton Park, Pontefract ; Mr James Mitchell, gardener to Sir D. Baird, Newbyth ; Mr M'Millan, gardener to Lord Blantyre, Erskine House, and several others, had excellent lots that required to be passed over. In collections of 12, Mr Cowe, gardener to Capt. Hope, Luffness ; Mr M'Indoe, gardener to the Archbishop of York ; and Mr Lowe, Sauchie House, had fine lots of large stone-fruit.

Especially about the table containing the collections of 20 fruits did the crowd of visitors congregate ; and no wonder, for in themselves they constituted a fine show of fruit.

Of Pine-apples, Charlotte Rothschild, from Mr Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks, was very good indeed, and some good Queens came from several sources. Mr Carmichael, gardener to H.R.H. the Prince of Wales, Sandringham, King's Lynn, sent a fine group, not for competition, consisting of the Moscow Queen and three fine fruits of the Queen Pines, to which a special first prize was awarded ; also a good bunch of the Champion Muscat Grape, so well shown by him at Manchester in July last.

As might have been expected, there was a great lot of Melons, the best in the green-fleshed class being Bensie's Incomparable and Dr Hogg ; and in the scarlet-fleshed class the perennial and ever-victorious Scarlet Gem. The best Figs were shown by Mr Cowe, and the largest and best variety among them was named Luffness, a variety bearing a marked resemblance to Castle Kennedy.

The 12 best Peaches, shown by Mr D. Campbell in three sorts, were unfortunately unnamed; and yet the rules specify that "all fruits must be correctly named." Mr Mathieson, Tulliallan Castle Gardens, was second with Royal George, Barrington, and Noblesse. The group awarded the third prize contained only Red Magdalen, as distinct from the foregoing. The best 12 Nectarines came from Mr Thos. Hardie, Springfield House Gardens, and consisted of Elruge, Early Newington, and Violette Hative. Duc de Tolliers and Hunt's Tawny were also exhibited. Apricots, which were somewhat sparsely shown, consisted of Moor Park, Hems-kirk, Masculine, Peach, Blenheim, and Hensha. The best Plums were yellow and red Magnum Bonum, Washington, Kirke's Greengage, and Coe's Golden Drop.

Apples and Pears were poorly represented, as might have been expected, seeing how partial the crop is generally. Mr George Scrymgeour, Reading, was first with a collection, of 6 sorts each, of baking and dessert Apples. Of the former he had Reinette du Canada, Dutch Codlin, Yorkshire Greening, Emperor Alexander, Kentish Filbasket, and Gloria Mundi; and of the latter, Blenheim Orange, Golden Reinette, Golden Winter, Pearmain, Louis Pearmain, Sturmer Pippin, and Ribston Pippin. The best 6 Pears, in 2 sorts, came from Mr James Douglas, Ilford, who had Bon Chretien and Louise Bonne of Jersey; 2d, Mr James Gordon, with the former and Beurre d'Amaulis.

Turning to the plant department of the Exhibition, the collections of miscellaneous new and rare ornamental plants, &c., exhibited by Messrs Veitch & Sons, P. Lawson & Son, J. & R. Thyne, Downie, Laird, & Laing, Methven, Mitchell, Barron & Son, Elvaston, Derby, &c., deserve the highest praise. Those contributed by Messrs P. Lawson & Son were mainly disposed in the large orchestra, and made a fine and effective display. Most of the other exhibitors of groups of plants competed for the prizes for the collections of new and rare plants. Messrs Veitch & Sons were placed 1st with a grand group; 2d, Messrs J. & R. Thyne, Glasgow; and 3d, Messrs Downie, Laird, & Laing; and a special prize was awarded to Messrs Barron & Son for their group of coniferous plants, containing several remarkably good things. Mr R. Hartland, Cork, had a group of his new variegated *Wellingtonia gigantea*.

The collections of plants competing for prizes were very fine; an indifferent specimen was quite the exception. Mr William Thomson, Dalkeith Gardens, was first with eight stove and greenhouse plants, not more than two of a variety, having two fine examples of *Vanda tricolor*, one plant with six spikes of bloom; four very finely grown and flowered Heaths, that reminded one of the old days of Chiswick—viz., *E. Austiniana*, very fine indeed; *E. Jacksoni*, and two plants of *E. retorta* major; a fine *Statice Holfordi*, and *Aerides suavisissima*. Second, Mr T. Lees, The Gardens, Tynninghame, who had five fine *Ericas*—viz., *Marnockiana*, *Linniioides pregnans*, *Austiniana*, a very fine pale seedling quite of a new style, free in growth, and very free of bloom; and a grand variety of *Aitonia*, named after the raiser Turnbulli, and of a pale bright-red hue; *Phœnocomma prolifera*, *Statice Rattrayana*, and *Cattleya crispa*. The Heaths here were very fine also; and it may be stated in this place that all the *Ericas* exhibited on this occasion, with the exception of *Retorta* major, were raised by Mr Turnbull. Third, Mr John Sutherland, gardener to P. Denny, Esq., Helenslee, Dumbarton. Four collections of plants were staged in competition. But two competitors appeared in the class for three Cape Heaths, and these were placed equal first, Mr Lees having *Linniioides pregnans* Turnbulli and *Aitonia* Turnbulli; Mr J. M'Kay, gardener to W. C. Tennant, Esq., The Glen, Innerleithen, had *Marnockiana*, *Aitonia* Turnbulli, and one unnamed. Mr Sutherland was first with four fine-foliaged plants, having gloriously-coloured specimens of *Croton variegatum* and *angustifolium*,

Dicksonia antarctica, and *Cyathea dealbata*, both very fine specimens. Second, Mr W. Thomson, with three huge specimens of *Croton pictum*, *Croton variegatum*, and *C. angustifolium*, much larger plants than in the preceding group, but not so well coloured; and a fine *Alocasia zebrina*. Third, Mr Thomas Ormiston, gardener to W. A. Jamieson, Esq., Walk, Alloa, with the two *Crotons* just named, a very fine *Pandanus elegantissimus*, and *Latania borbonica*. Seven collections competed in this class. Mr Thomson was first with the finest four Ferns, having a magnificent specimen of *Cibotium Schiedeii*, a fine *Neottopteris nidus*, *Alsophila excelsa*, and *Pteris umbrosa*, all very good. Second, Mr Sutherland, with *Todea superba*, *Dicksonia squarrosa*, *Gymnogramma martensi*, and *G. peruviana argyrophylla*, both very fine. Third, Mr Thomas Ormiston. Tree-ferns were finely shown, and made a grand feature, towering up aloft in different parts of the room. Mr Sutherland was first with *dealbata*; Mr Gordon, of Niddrie Gardens, second; and Mr Thomson, third, both with *Dicksonia antarctica*. But one collection of three Orchids was staged, that from Mr Thomson, Dalkeith, and consisted of two fine plants of *Vanda tricolor*, and one of *V. suavis*. They were deservedly awarded the first prize. Fuchsias were but poorly represented, mainly plants with the common fault of being too old, though of pretty good shape. In the class for two plants in 8-inch pots a third prize only was awarded, so generally bad were the plants. The two Cockscombs shown by Mr Pow, gardener to J. Melville, Esq., in class 76, were marvellous specimens of high cultivation: the largest of the two had a comb some 16 inches in length and 8 inches in breadth, the other being only a little smaller. Mr Gordon had three large and well-grown pans of *Achimenes*; but having been brought out of too much heat, the flowers soon withered. He was the only exhibitor, and was awarded the first prize.

Zonal Pelargoniums were generally large, and somewhat coarsely grown. The best lot of four kinds shown by Mr J. Kennedy, gardener to D. Murray, Esq., Strathearn Road, were the best in many respects; though large, yet pretty well bloomed. The first prize for the best four variegated Zonal Pelargoniums was taken by Mr J. M'Farlane, gardener to D. Anderson, Esq., Moredun, with pretty, well-grown, but large plants of *Sunset*, Mrs Pollock, Variegated *Stella*, and *Queen of Queens*, a silver-edged variety. What appeared to be wanted is an infusion of new kinds.

Liliums were very well shown. Some very finely bloomed plants of *L. auratum* made a good display, and emitted a delightful fragrance. Some well-grown plants of the varieties of *L. lancifolium* were also shown.

In the way of cut flowers there was a very good display; but the recent frost, which appears to have been much felt in Scotland, had committed great havoc on Dahlias, Hollyhocks, &c. Happily the weather was very dry at the time of the visitation, or the consequences would have been much worse. With twelve cut Roses, Mr J. M'Indoe, gardener to the Archbishop of York, was first with some small but good blooms of *Madame Victor Verdier*, *Leopold I.*, *Souvenir de Malmaison*, *Gloire de Dijon*, *La France*, *Général Jacqueminot*, *Princess Mary of Cambridge*, *Madame Charles Wood*, *Jules Margottin*, *Maréchal Niel*, *Pierre Notting*, and one unnamed. Second, Mr George Barrie, gardener to Miss Henderson, Corstorphine. Gladioli were shown in fine condition, notwithstanding the severe drought. In the nurserymen's class for thirty spikes, not more than two of a sort, Messrs Stuart & Mein, Kelso, were first with fine examples of *Ninon de l'Enclos*, *Le Titien*, *Marie Stuart*, *Achille*, *Madame Furtado*, *Maréchal Vaillant*, *Mozart*, *La Fiancée*, *Fulton*, *Lady Franklin*, *Le Gouve*, *Princess Clotilde*, *Stuart Low*, *Etendard*, *La Quintinie*, *Dr Lindley*, *Norma*, *De Candolle*, *Apollon*, *Compte de Morny*, *Penelope*, *Madame Chauvière*, *Thalie*, and *Princess of Wales*. Some of these were shown in

duplicate to make up the number. Second, Messrs Downie, Laird, & Laing with a fine lot of spikes, only just inferior to those awarded the first prize. The sorts were Meyerbeer, Shakespeare, Chateaubriand, Semiramis, Molière, Thalie, Schiller, Le Poussin, Princess Frederick William, Maréchal Vaillant, Isabella, Princess Clotilde, Milton, Belle Gabrielle, Duc de Malakoff, La Fiancée, Lord Byron, Vesta, Madame Roland, Achille, Charles Dickens, Fulton, and Madame Vilmorin. Third, Mr John M'Pherson, Aberdeen. Any one desirous of obtaining a collection of fine Gladioli cannot do better than consult the foregoing lists, as they comprise some of the finest varieties in cultivation, adapted either for decorative or exhibition purposes. In the amateurs' class for eighteen spikes, Mr W. Marshall, The Gardens, Sandhouse, Hexham, was first with fine flowers of the following varieties: John Downie, Reine Victoria, O'Connell, Princess of Wales, Andrew Balfour, William Thomson, Lord Byron, Shakespeare, Andrew Schofield, Mrs Bailey, Madame Furtado, Madame Klein, La France, Le Gouve, Fulton, Penelope, and some unnamed. 2d, Mr W. Shand, The Gardens, Fetteresso Castle, Stonehaven. 3d, Mr Harper, The Gardens, Turner Hall. With twelve spikes, Mr John Gordon, gardener to A. Wauchope, Esq., was first with Stuart Low, Lord Byron, Crystal Palace Gem, Daphne, Marie Stuart, Félicien David, Eugène Scribe, Duc de Malakoff, Shakespeare, Le Poussin, Madame Desportes, and Sultan Abdul Aziz. Equal second prizes were awarded to Mr Alexander, Hexham, and Mr J. M'Indoe. In the amateurs' class for eighteen kinds five groups were staged, and in the class for twelve varieties six collections.

Chrysanthemum-flowered Asters were fairly shown, and it must be presumed that the phrase is intended to include all kinds of reflexed flowers, as some of the finest blooms staged on this occasion were of the Victoria type. It is singular that no provision should be made for the fine incurved forms of the Pæony-flowered type, probably the finest of the exhibition Asters, as they include hues of colour not found in the Chrysanthemum-flowered types. Quilled Asters were good also, but were wanting in the size and beauty of the flat-petalled flowers.

Cut spikes of Hollyhocks made a fine display, and were remarkably well shown, notwithstanding the drought and a scarcity of water. In the nurserymen's class for eleven spikes, Messrs Downie, Laird, & Laing were clean ahead with fine examples of Octoroon, Mrs P. Bruce, Miss Young, Tournament, Lord Stanley, Lord Clifden, R. G. Ross, Mr Downie, Lord Rokeby, Jas. Whitten, and Countess of Craven. 2. Mr Harrison, Darlington, the best being Rev. J. Dix, Joshua Clark, Invincible, Alba superba, Charles Eyre, Hebe, and Gladiator. 3. Messrs John Stuart & Son, Dundee. In the amateurs' class for nine spikes, Mr D. Marshall, gardener to Miss Hay, Kingston Grange, was first with Countess of Craven, John Tweedie, Acme, Jeanne d'Arc, Mr Downie, Rev. J. Dix, Mr P. Bruce, Hercules, and Invincible. 2. Mr G. Barrie, with J. Taylor, Lady Rokeby, David Doig, Miss Young, Tournament, Hercules, Jane Wilson, Mr P. Bruce, and Lord Clifden. In spite of the weather four competing groups were staged. In the class for five spikes, Mr J. M'Indoe was first with very fine examples of Bridesmaid, Mrs Hastie, Favourite, Queen of Yellows, and a promising seedling. 2. Mr G. Morrison, gardener to Miss Dunsmuir, Corstorphine, with Lord Stanley, John Downie, James Whitten, Lord Clifden, and Miss Young. Four groups were also staged in this class. With twelve cut blooms of Hollyhocks the competition among the amateur cultivators was very severe. The Rev. E. Hawke was first with very fine blooms of Phryne, Exhibitor, Ruby Queen, Gem, Ariadne, Mrs Hastie, Formosa, Charles Eyre, George Keith, Willingham Model, Fred. Chater, and Ida, the three last named particularly fine. 2. Mr J. M'Indoe, with Willingham Model, a splendid bloom; Charles Eyre, Adonis, Ida, Fred. Chater, Lord

Napier, Leah, Mr P. Pruce, Rev. J. Dix, the Archbishop, a promising pale-coloured seedling, and other seedlings. Mr J. Ross, teacher, Glamis, was third.

The cut blooms of Dahlias bore unmistakable evidence of having been roughly treated by the frost and drought; nevertheless, Messrs Downie, Laird, & Laing contributed, and took first prize with a good twenty-four blooms of Criterion, King of Primroses, Mr Dix, John Kerby, John Salter, Anna Neville, Andrew Dodds, Vice-President, Constance, John Hunter, Hebe, Favourite, Yellow Boy, Lord Derby, Commander, Hon. Mrs G. Wellesby, Imperial, Memorial, Emperor, Adonis, Mr Brunton, Bullion, Mr Dodds, and Indian Chief. 2. Mr John Harrison, Darlington; and, 3d, Messrs Stewart & Sons, Dundee. In the amateurs' class for eighteen blooms, Mr R. Montgomery, Kilburnie, was first with Vice-President, Grand Sultan, Miss Henshaw, Harry, Lord Derby, Little Atkins, Lady Jane Ellis, Bullion, Adonis, and Garibaldi, duplicates of these being admitted. 2. Mr Wm. Shand. 3. Mr John M'Lean, Duloch Gardens. In the class for twelve blooms the competition was close, and ten stands competed. Mr W. Brown, gardener to David Buchan, Esq., New Saughton, was first with Criterion, Emperor, Buttercup, Miss Henshaw, Lady J. Ellis, Adonis, Valentine, Princess Alice, Sir G. Smythe, Memorial, General Jackson, and Commander. 2. Mr Jas. Johnston, The Gardens, Belfield House, Cupar, with Vice-President, Criterion, Miss Henshaw, Purple Gem, Lord Derby, Bullion, Andrew Dodds, Miss Turner, Lady J. Ellis, Juno, Bob Ridley, and Freemason. 3. Mr Goodwin, York. With twelve fancy Dahlias, Messrs Downie, Laird, & Laing were first with very good blooms of Viceroy, Miss Ruth, Heir of York, Attraction, Gem, Jeanie Deans, Leopardess, Fanny Sturt, Mrs Joy, Madlle. Nilsson, Mr Reed, and Rosalia. 2. Messrs Stewart & Son, with blooms not near so good, somewhat small and yet coarse. In the amateurs' class for twelve kinds, Mr John M'Lean was first with sorts very similar to those just named; and Mr Goodwin, York, second. With six fancies, Mr John Jones, The Gardens, Bangholm Bower, was first, being the only exhibitor.

THE PRIZE-LIST.

We append a list of the awards, premising that the following gentlemen officiated as judges:—

Fruit—Messrs Tillyard, Brocklesby Park; Dell, Stock Rochford; Webster, Gordon Castle; Speed, Chatsworth; Webster, Raby Castle; George Thomson, Stanstead, Sussex; Carmichael, Sandringham; Blair, Shrubland Park.

Plants—Messrs Dominy, Veitch & Sons, London; David Thomson, Drumlanrig; M'Nab, Botanic Gardens, Edinburgh; Graham, Garsecube; Turner, Royal Nursery, Slough; Methven, Blytheswood; Laing, of Downie, Laird, & Laing, Edinburgh; Wm. Dean, late of Shipley; Rev. S. Reynolds Hole; Rev. Edward Hawke; John Keynes, Salisbury.

CLASS I.—FRUIT.

Two best Queen Pine-Apples—1. Robert Fowles, gardener to Mr George Henderson, Fordel; 2. William Brown, gardener to Sir David Baxter, Bart., Kilmarnock.

Two best Smooth Cayenne Pine-Apples—J. W. Fortune, gardener to Mr Robert Jardine, Castlemilk.

Two best, any other sort—1. George Ward, gardener to Thomas Miller, Esq., Bishop's Stortford; 2. Mr Devilles, gar-

dener to Major Martin, Woottonhall, Ashburn.

Eight best varieties of Grapes, one bunch of each—1. George Johnston, gardener to the Earl of Strathmore; 2. Thomas Bannerman, gardener to Lord Bagot, Blithfield, Rugby; 3. W. Thomson, gardener to his Grace the Duke of Buccleuch.

Four best varieties of Grapes—1. William Bryden, gardener to Sir Wil-

liam Wallace, Bart., Lochryan House ; 2. J. MacConnochie, gardener to Mr A. Smollett, Cameron House ; 3. William Meads, gardener to Mr Raikes Currie, Minley Manor, Farnburgh, Hants.

Two best bunches Black Hamburg Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. Walter Bisset, gardener to Mr J. C. Philips, Cheadle ; 3. J. Stevens, gardener to the Duke of Sutherland.

Two best bunches of Muscat of Alexandria Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. William Bryden, gardener to Sir William Wallace, Bart., Lochryan House ; 3. James Loudon, gardener to Mr Thomas Barnes, Quinta, Salop.

Two best bunches Mrs Pince's Muscat Grapes—1. Mr Joseph Meredith, Garston, Liverpool ; 2. James Douglas, gardener to Mr Francis Whitbourn, Loxford Hall, Ilford ; 3. John McDonald, gardener to Mrs Sharp Erskine.

Two best bunches Muscat Hamburg Grapes—1. David Morrison, gardener to Mr H. H. Allen, Inchmartine House ; 2. William Bryden, gardener to Sir William Wallace ; 3. James Turner, gardener to Mr Mark Sprot of Riddell.

One best bunch Black Hamburg Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. J. MacConnochie, gardener to Mr A. Smollett, Cameron House ; 3. James Hannah, gardener to Mr John Duncan, Burnhead.

One best bunch Muscat of Alexandria Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. William Meads, gardener to Mr Raikes Currie ; 3. Alexander Ingram, gardener to the Duke of Northumberland.

One best bunch Black Alicante Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. William Melville, Glenlee, New Galloway ; 3. George Greig, gardener to Mr W. Christie, Greenpark, Liberton.

One bunch best Grapes, Lady Downes—1. George Johnston, gardener to the Earl of Strathmore ; 2. Thomas Bannerman, gardener to Lord Bagot ; 3. Thomas Fraser, gardener to Mr James Tweedie, Rachan House.

One heaviest bunch Black Grapes—1. James Douglas, gardener to Mr Francis Whitbourn ; 2. J. Laing, gardener to Mr R. Cathcart, Pitcarlie ; 3. Charles Irvine, gardener to Mr G. Watson.

One heaviest bunch White Grapes—1. James Dickson, gardener to Mr John Jardine, Arkelton, 16½ lb. ; 2. Wm. Melville, Kirkcudbright.

One bunch finest-flavoured White Grapes—1. George Johnston, gardener to the Earl of Strathmore ; 2. John Brunton, gardener to Sir David Kinloch, Bart.

One bunch finest-flavoured Black Grapes—1. George Johnston ; 2. John Brunton.

One bunch finest Bloom Grape—George Johnston.

Best collection of the varieties of Black Hamburg Grapes, with their names, one bunch each—1. William Thomson ; 2. George Johnston.

Best collection of the varieties of White Muscats, with their names, one bunch each—1. Alex. Ingram, gardener to the Duke of Northumberland ; 2. William Thomson ; 3. John McKay, gardener to Mr Charles Tennant of The Glen.

Florist and Pomologist Prizes.—Two bunches of Grapes, White and Black—1. Wm. Bryden ; 2. George Johnston.

For the best collection of White and Black Grapes, with their names, as are not included in the other prizes offered—George Johnston.

For the best collection of twenty sorts of Fruits—not more than six sorts of Grapes, two sorts of Pines, and two sorts of Melons—1. G. Stevens, gardener to his Grace the Duke of Sutherland ; 2. George Johnston, gardener to the Earl of Strathmore ; 3. W. Thomson, gardener to his Grace the Duke of Buccleuch ; 4. Alexander Ingram, gardener to his Grace the Duke of Northumberland.

For the best collection of sixteen sorts of Fruits, exclusive of Pines—1. W. Mathieson, gardener to the Hon. Mrs Villiers, Tulliallan Castle Gardens ; 2. Thomas Lees, gardener to the Earl of Haddington ; 3. M. Temple, gardener to Mr J. Balfour, Balbirnie ; 4. John Laing, gardener to Mr Robert Cathcart, Pitcarlie.

For the best collection of twelve sorts of Fruits, exclusive of Pines and Grapes—1. John Cowe, gardener to Mr H. W. Hope, Luffness ; 2. J. M'Indoe, gardener to the Archbishop of York ; 3. Wm. Lowe, gardener to Sir A. C. R. Gibson Maitland, Bart.

For the best Vine grown in pot and in fruit (Black)—1. A. Turnbull, gardener to Mr James Brunton, Broom-

lands; 2. A. McLeod, Newbattle Gardens, Dalkeith.

For the best Vine grown in Pot and in Fruit (White)—1. A. McLeod; 2. James Gordon, gardener to Mr Andrew Wauchope, Niddrie.

For the best Melon, green-fleshed—1. James Douglas, gardener to Mr F. Whitbourn, Loxford Hall; 2. James Philips, gardener to Mr J. Hope Barton, Stapleton Park, Pontefract; 3. Alex. Ingram, gardener to the Duke of Northumberland.

For the best Melon, scarlet fleshed—1. James Douglas; 2. John Pottle, Bealings Grove, Woodbridge, Suffolk; 3. William Shand, gardener to Mr Duff of Fetteresso.

For the best twelve Figs, three sorts, four of each—1. J. Cowe, gardener to Mr H. W. Hope, Luffness; 2. John Laing, gardener to Mr Robert Cathcart, Pitcarlie; 3. Mr Fowler, Harewood House, Leeds.

For the best twelve Peaches, three sorts, four of each—1. Duncan Campbell, gardener to Mr James Johnston of Alva; 2. D. Mathieson, gardener to the Hon. Mrs Villiers; 3. James Combe, gardener to Mr Wm. Greig, Glencarse.

For best twelve Nectarines, three sorts, four of each—1. Thomas Hardie, gardener to Provost Swan, Springfield House, Cupar-Fife; 2. D. Mathieson.

For best twelve Apricots, three sorts, four of each—1. David Ross, gardener to Col. Macdonald, St Martin's Abbey; 2. J. McIndoe, gardener to the Archbishop of York; 3. George Cook, gardener to Captain Woods, Holeyn Hall.

For best Twelve Plums, three sorts, four of each—1. William Kirkpatrick, gardener to Lord Abercromby; 2. George Scrymgeour, gardener to Mr R. Palmer, Holme Park, Reading.

For best six Peaches, any sort—1. James Loudon, gardener to Mr Thomas Barnes; 2. William Brown, gardener to Sir David Baxter.

For best six Nectarines—1. Thomas Hardie; 2. John Brunton, gardener to Sir David Kinloch, Bart.

For best six Jargonelle Pears, fit for table—1. James Philips, gardener to Mr J. Hope Barton; 2. Thomas Lees, gardener to the Earl of Haddington, Tynninghame; 3. William Melville, Glenlee Gardens, Galloway.

For best six Pears, two of each sort (exclusive of Jargonelle), fit for table—1. James Douglas; 2. James Gordon, gardener, Niddrie House; 3. George Scrymgeour.

For a collection of Pears, twelve sorts, two of each, ripe or unripe—1. George Scrymgeour; 2. Thomas Lees, gardener to the Earl of Haddington; 3. George Miles, gardener to Lord Carington, Wycombe Abbey.

For a collection of Dessert Apples, six sorts, two of each, ripe or unripe—1. G. Scrymgeour; 2. William Bryden, gardener to Sir W. Wallace; 3. W. Brown, gardener to Mr D. Buchan, New Saughton.

For a collection of Baking Apples—1. G. Scrymgeour; 2. J. Cumming, gardener to the Earl of Wemyss, Amisfield; 3. J. Mitchell, gardener to Sir D. Baird, Bart.

For best six Dessert Apples, fit for table, two of each sort—1. G. Scrymgeour; 2. A. Anderson, gardener to Mr James Lindsay, Dryden Bank; 3. John Cowe, gardener to Mr Hope of Luffness.

For best pint of Gooseberries—1. A. Moir, gardener to Mr John Baird of Uny; 2. Mr Geddes.

Pint of Red Currants—1. McFarlane, gardener to Sir R. Hay, Bart.; 2. Wm. Shand.

Pint of White Currants—1. J. Brunton, gardener to Sir D. Kinloch; 2. Lawrence Geddes, gardener to Lord Clinton, Invermay.

Collection of Tropical Fruits—J. McKay, gardener to Mr C. Tennant of The Glen.

Finest four Fruit-trees in fruits, grown and shown in pots—1. James Gordon, gardener to A. Wauchope, Niddrie; 2. Geo. Greig, gardener to Mr Wm. Christie, Greenpark.

CLASS II.—(Nothing shown.)

CLASS III.—OPEN TO ALL GARDENERS AND AMATEURS.

Eight Stove and Greenhouse Plants in flower—1. Wm. Thomson, Dalkeith; 2. T. Lees, gardener to Earl of Haddington; 3. John Sutherland, gardener to Mr P. Denny of Helenslee, Dumbarton.

Three Cape Heaths of sorts—T. Lees, and J. McKay, gardener to Mr C. Tennant, equal.

Four Plants of Fine Foliage—1. J. Sutherland; 2. Wm. Thomson; 3. Thos.

Ormiston, gardener to Mr A. Jamieson, Halk House.

Four Ferns—1. Wm. Thomson; 2. J. Sutherland.

Finest Tree Fern—1. J. Sutherland; 2. Mr Gordon, gardener to Mr Andrew Wauchope, Niddrie; 3. Wm. Thomson.

Three Orchids in bloom—1. Wm. Thomson.

Three Fuchsias—1. Mr Joss, Morningside; 3. Wm. Laird, gardener to Sir James Coxe, Kinellan House.

Two Cockscobs—1. J. Pow, gardener to Mr J. Melville; 2. William Kirkpatrick, gardener to Lord Abercromby.

Three pots Achimenes—1. James Gordon.

Four Zonal or Bedding Geraniums—1. John Kennedy, gardener to Mr D. Murray, Strathearn Road; 2. Wm. Mallocks, gardener to Mr Thomas Milne, Niddrie Mains.

Four Variegated Zonals or Bedding Geraniums—1. C. M'Farlane, gardener to Mr D. Anderson of Moredun; 2. John Clark, gardener to Mr W. S. Mitchell-Innes, Parson's Green.

Three Lilioms in pots—John Currie, gardener to Mr W. Nelson, Salisbury Green.

One Liliom Aratum—Colin M'Farlane, gardener to Mr D. Anderson.

Twelve cut Roses—1. James M'Indoe, gardener to the Archbishop of York; 2. George Barrie, gardener to Miss Henderson, Corstorphine.

Eighteen Gladioli—1. William Marshall, gardener to Sir R. Stanley Errington, Bart., Sandhoe, Hexham; 2. Wm. Shand, gardener to Mr R. W. Duff;

3. P. Harper, gardener to Mr J. S. Gordon, Turner Hall.

Twelve Gladioli—1. James Gordon, gardener to Mr A. Wauchope; 2. Mr Alexander, Hexham; and 3. J. M'Indoe.

Twelve Quilled Asters—John Woodrow, Williamsburgh, Paisley; 2. Wm. Glass, Stirling.

Twelve Chrysanthemum-flowered Asters—1. James Harper, gardener to Mr L. Walkinshaw; 2. John Cockburn, gardener to Mr John Cox, Gorgie.

Nine Spikes of Hollyhocks of sorts—1. D. Marshall, gardener to Miss Hay, Kingston Grange; 2. G. Barrie, gardener to Miss Henderson, Corstorphine; 3. Wm. Shand, gardener to R. W. Duff, Esq.

Five Spikes of Hollyhocks of sorts—1. Mr J. M'Indoe; 2. George Mollison, gardener to Miss Dunsmuir, Corstorphine; 3. Colin Bell, gardener to Anthony Nichol, Esq., Kerfield.

Twelve cut Blooms Hollyhocks—1. Rev. Edward Hawke, Ganisboro'; 2. J. M'Indoe.

Eighteen Dahlia Blooms—1. R. Montgomery, Kilbirnie; 2. Wm. Shand; 3. John M'Lean, gardener to Mr Gibson, Duloch.

Twelve Dahlia Blooms—1. W. Brown, gardener to David Buchan, Esq., New Saughton; 2. James Johnston, gardener to Colonel Lyon, Belfield House, Cupar; 3. Goodwin, York.

Twelve Dahlia Blooms (Fancy)—1. John M'Lean; 2. Goodwin, York; 3. Wm. Laird, gardener to Sir James Coxe, Kinellan House.

Six Dahlias (Fancy)—John Jones, gardener to Captain Boulton, Bangholm Bower.

CLASS IV.—FOR NURSERYMEN ONLY.

Eleven Spikes Hollyhocks—1. Messrs Downie, Laird, & Laing; 2. Mr John Harrison, Darlington; 3. Messrs Stewart & Son, Dundee.

Twenty-four Dahlia Blooms—1. Messrs Downie, Laird, & Laing; 2. Mr Harrison; 3. Messrs Stewart and Son.

Twelve Fancy Dahlia Blooms—1. Messrs Downie, Laird, & Laing; 2. Messrs Stewart & Son.

Thirty Gladioli—1. Messrs Stewart & Mein, Kelso; 2. Messrs Downie, Laird & Laing; 3. Mr John M'Pherson, Aberdeen.

Collection of New and Rare Plants—1. Messrs Veitch & Son, Royal Exotic Nursery, London; 2. Messrs Thyne & Son, Glasgow; 3. Messrs Downie, Laird, & Laing; special prize, equal to 3d, to Messrs W. Barron & Son, Derby, for collection of Coniferous Trees.

CLASS V.

Collection of Salads—1. Temple, gardener to Mr J. Balfour, Balbirnie; 2. Alexander Anderson, gardener to W. H. Brown, Ratho; 3. Donald Mathieson,

Tulliallan Castle Gardens.

Collection of Vegetables—1. Donald Mathieson and W. Thomson, equal; 2. Temple.

CLASS VI.

Two bunches Grapes—1. D. P. Bell,
Clive Villa, Alnwick; 2. Rev. Mr
Bushby, Dalkeith.

Six Peaches—1. D. P. Bell.

SPECIAL AWARDS.

To Thos. Ormiston, gardener to —
Jamieson, Esq., The Walk, Alloa, for
a very handsome plant of *Lapigera rosea*.

To Mr Carmichael, gardener to his
Royal Highness the Prince of Wales,
for four Queen Pines.

THE DINNER.

The members of the Society dined together in the Douglas Hotel at six o'clock. About 140 gentlemen were present. The Right Hon. the Earl of Dalkeith presided, and Professor Balfour officiated as croupier; and among the company were the Right Hon. R. C. Nisbet-Hamilton, Sir H. J. Seton Stewart, Bart.; Mr Miller, M.P.; Rev. S. Reynolds Hole, Rev. Edward Hawke, Dr Alexander Wood, Councillors Methven and Tawse, Messrs Charles Turner, Slough; David Smith, W.S.; Chas. Lawson, George Lawson, John Gibson, Woolmet; Thomas Sprott, A. W. Adam, Wm. Thomson, Dalkeith; D. Thomson, Drumlanrig; Wm. Blackwood; Carmichael, Sandringham; Speed, Chatsworth; Webster, Gordon Castle; Westcott, Raby Castle; Ingram, Alnwick; Lees, Tyringhame; Anderson, Oxenford; Black, Liberton; Fowler, Castle Kennedy; J. Keynes, Salisbury; B. S. Williams, London; J. Downie, Westcoats; J. Laing, London; W. Dean, London; A. M'Kenzie, London; D. Mitchell, Edinburgh; G. Tillyard, Brocklesby; R. P. Glendinning, Chiswick; D. Syme, Bangholm, &c. &c.

The Chairman intimated that letters of apology had been received from the Lord Provost, Sir Alexander Gibson-Maitland, M.P., Sir William Gibson-Craig, Mr Dundas of Arniston, and Mr Charles Lawson.

After the usual loyal and patriotic toasts had been proposed, the Chairman gave "The Lord Provost and Magistrates of Edinburgh," coupled with the name of Councillor Methven. (Applause.)

Mr Methven, in replying, said he thought the Town Council of Edinburgh was only doing honour to itself in supporting such an institution as the Caledonian Horticultural Society. (Applause.) It was an institution which tended to do great good to this city. He was sure he might say for himself and his colleagues in the Council, that they were glad to see such an exhibition of horticultural productions. Never before had there been such a display of horticultural produce in this city.

The Chairman gave "The English Horticultural Society and the Strangers." They were much indebted to those gentlemen who had come down from England for what they had done in helping them to secure the success of the show. They wished them a most cordial welcome, and heartily thanked them for what they had done. In Scotland we had to contend against the climate, which was not always the best; but what they had that day seen, showed that they had turned the abilities they had to the best advantage. (Cheers.) He thought they ought to look with pleasure on all attempts to further horticulture. He was happy to see that into their contests no bad feeling entered. It was not in horticulture as in politics, where difference of opinion ran high—(laughter and applause)—where people took up different views on different subjects, each man having his own crotchet. In horticulture they all worked together for one end, to endeavour to bring out that which was most beautiful, that which would afford most pleasure to those who were engaged in the business of life—(cheers)—whether the mercantile man, who might find pleasure in his greenhouse after the day's anxieties; or

the poor cottager, who might find pleasure in a simple border or a few select flowers in his small garden. (Cheers.) He concluded by again proposing "The English Horticultural Society and the Strangers, coupled with the name of the Rev. S. Reynolds Hole of Newark." The toast was cordially pledged.

Mr Hole, in responding, acknowledged the superiority of Scotchmen both as horticulturists and agriculturists, and thanked the Society for the hearty reception the strangers had received. He had to reciprocate their kindness by proposing "Prosperity to the Royal Caledonian Horticultural Society." He congratulated them on having got up the finest exhibition of fruit that ever was seen since the Creation. (Laughter and applause.) The show was enough to take away one's breath; and when a royal prince, three dukes, and earls and baronets as numerous as the Peaches, contended in the battle, defeat was glory. (Laughter and cheers.) He coupled with the toast the name of the noble President, the Duke of Buccleuch. (Applause.)

The noble Chairman returned thanks, and then gave "The Successful and Unsuccessful Competitors," coupled with the name of Mr Johnston. In proposing the toast, his lordship bore testimony to the superior character of the exhibition, especially of fruit, and expressed a hope that the high standard which had been reached would be maintained.

Mr Johnston returned thanks.

Professor Balfour gave "The Judges," coupled with the name of Mr Turner, Slough.

Mr Turner, in responding, said it had given him the greatest pleasure and pride to be appointed one of the judges in a show where so many magnificent productions were exhibited. He had acted as a judge twenty times, and he had been present at such exhibitions for twenty years, but he had never seen anything like such an exhibition of fruit—he would not say on one occasion, but on half-a-dozen occasions—as had been that day placed before them. (Applause.) The show of fruit was altogether something wonderful. This was not the season for plants, but the show would have been better if the Committee had had a larger space at their disposal.

The Chairman, in next giving the health of the members for the city, said the members of Parliament had had most arduous duties to perform during last session. They would not all agree in the principles which they held, but they would all give their members credit for doing their duty according to their own convictions. He coupled with the toast the name of Mr Miller, M.P. (Applause.)

Mr Miller, in replying, said that if he had always to encounter as hard work as he had encountered during last session, he would rather be the hardest-worked gardener in Scotland than a member of Parliament. (Laughter.) He was afraid, however, that they would have equally hard work next session. He had great pleasure in countenancing the exhibitions of the Caledonian Horticultural Society, as, if its objects were properly carried out, it was calculated to afford inconceivable happiness to the people of this country. (Cheers.)

Mr Nisbet-Hamilton gave "The Health of the Earl of Dalkeith," which was cordially received.

The noble Chairman acknowledged.

Mr Miller, M.P., gave "The Office-Bearers."

Mr David Smith gave "The Ladies;" and several other toasts having been proposed, the company broke up shortly after ten o'clock.

Messrs Geoghegan, Bishop, and Rutherford were present, and sang a number of glees during the evening.

We may add that at the close of the exhibition, Mr T. H. Douglas, photogra-

pher, Merchiston Park, took a most successful photograph of the fine group of eleven spikes of Hollyhocks contributed by Messrs Downie, Laird, & Laing. We have seen the photograph, and can bear testimony to its value as a work of art, each spike being brought out clearly and definitely. We understand that Mr Douglas has coloured the photograph from flowers supplied for the purpose, and any one wishing to obtain an enduring souvenir of the Great Exhibition of 1869 cannot do better than obtain a copy of the photograph.

This report of the exhibition is by our able London correspondent, who was present on the occasion; and we have only to add that all the Edinburgh nurserymen sent valuable and well-grown collections of plants on the occasion, and that Messrs Peter Lawson & Son filled the orchestra with a truly magnificent collection of Coniferae, Tree-Ferns, Palms, and other highly-ornamental plants, which, seen either from the entrance to the hall or the gallery, were the admiration of all, and special credit is due to those who arranged them.

Mr Barron of the Royal Horticultural Society of London sent a large collection of hardy fruit—including Pears and Apples—selected from the orchards round London, which excited much interest.

We consider the arrangements made by this Society for having the awards all made by nine o'clock in the morning, so as to enable gardeners to see the exhibition from that hour till eleven o'clock at a small charge, is worthy of being copied by other societies. On this occasion some 1500 gardeners were enabled to inspect the whole subjects exhibited with ease and comfort, and when the public were admitted, they could with much greater facility see the productions than if the rooms had been thronged with gardeners. The police and other arrangements made by the Council seem to have given entire satisfaction; and as far as we can at present learn, the whole was successful financially; and there can be no doubt that such an exhibition, properly managed, in cities as populous as Glasgow, Liverpool, or Manchester, would be eminently so, and we trust that one or other of these cities will follow the example thus set them.



THE DUNDEE HORTICULTURAL SOCIETY.

THE Autumn Show of this Society took place in the Baxter Park on the second of last month.

This Society is famous for the patronage it extends to Ferns, and the result on the recent occasion was a splendid exhibition of them in all their forms and sizes. Prominent amongst the exhibitors of them were P. N. Fraser, Esq., Edinburgh, and Dr Lyell of Newburgh. Flowering plants were not so well represented as we have seen them on former occasions. Fruit was above the average both in quantity and quality; and vegetables good, considering the severe drought of the summer. For further information we refer to the prize-list, remarking that the Society is much indebted to Mr M'Kelvie for the assiduity with which he attends to all the details of management.

PLANTS IN POTS.

Six Fine-Foliaged or Variegated Plants—1. James Cocker, jun., Aberdeen; 2. John Stewart & Sons.

Four Scarlet Geraniums and their varieties—1. John Taylor, Foxmount;

2. G. Philip, Castle Huntly; 3. W. Balfour, Broughty Ferry.

Twelve Exotic Ferns—1. James Cocker, jun., Aberdeen; 2. John Stewart & Sons.

Four Fuchsias—1. John Taylor, Foxmount; 2. G. Philip, Castle Huntly.

Twelve British Ferns—1. P. N. Fraser, Edinburgh; 2. Dr Lyell, Newburgh; 3. James Annand, Dundee.

Three Pots of Liliiums—1. John Stewart & Sons.

Fifteen British Ferns—1. John Stewart & Sons; 2. Laird & Sinclair.

Four Caladiums—1. David Black, Broughty Ferry.

Six Stove Plants, in flower—1. John Motion, Seafeld Lodge; 2. David Black, Broughty Ferry.

Nine Variegated-leaved Geraniums, Bronze Zonal included—1. John Stewart & Sons; 2. James Cocker, jun., Aberdeen.

Six Greenhouse Plants, in flower—1. W. Garret—W. Ritchie, Elmslie; 2. J. Johnstone, Ashludie; 3. David Black, Broughty Ferry.

Six Caladiums—1. John Stewart & Sons; 2. Laird & Sinclair.

Specimen Tree Fern—1. John Stewart & Sons; 2. Laird & Sinclair.

Nine Exotic Ferns—1. P. N. Fraser, Esq.; 2. John Heath, Clement Park; 3. David Black, Broughty Ferry.

Three Greenhouse Plants, in flower—1. Mrs Kinmond, Broughty Ferry; 2. T. Horsburgh, Seafeld House; 3. James Low, jun., Maryfield.

Two Pots of Liliiums—1. David Clark, Maryfield, Perth; 2. John Heath, Clement Park.

Four Exotic Ferns—1. T. Horsburgh, Seafeld House; 2. Mrs Kinmond, Broughty Ferry.

Two Fuchsias—1. James Low, jun., Maryfield; 2. A. Paton, American Muir; 3. Mrs Kinmond, Broughty Ferry.

Specimen Hydrangea—John Ruddiman, Barrack Street.

Six British Ferns—1. W. Guild, Ferry Road, Dundee; 2. James Mitchell, Mains.

Two Geraniums, scarlet and their varieties—1. A. Paton, American Muir; 2. James Low, jun., Maryfield; 3. Duncan Grant, Ann Street.

Four Fine-Foliaged or Variegated Plants—1. W. Brow, Kilmaron Castle; 2. D. Black, Broughty Ferry; 3. John Motion, Seafeld Lodge.

Four Lycopodiums—1. Charles Keith, Fern Brae; 2. W. Garret, Elmslie; 3. W. Brow, Kilmaron Castle.

Four Scarlet Geraniums—1. John Stewart & Sons.

One Pot of Liliium Auratum—D.

Harper, gardener, Foggieley, Lochee; 2. David Roger, Ferry Road; 4. A. Paton, American Muir.

Six Lycopodiums—1. Laird & Sinclair.

Specimen Tree Fern—1. John Gillespie, Kinnettles.

Six Japan Plants, varieties—1. John Stewart & Sons.

Three Variegated-leaved Geraniums, Bronze Zonal included—1. G. Philip, Castle Huntly; 2. T. H. Miln, Linlathen; 3. David Black, Broughty Ferry.

Specimen Climber, in flower—1. John Heath, Clement Park; 2. Mrs Kinmond, Broughty Ferry.

Thirty Alpine Plants—1. Edward Moir, Newport; 2. F. Richmond, Baxter Park; 3. David Mitchell, Seafeld, Broughty Ferry.

Specimen Exotic Adiantum—1. W. Brow, Kilmaron; 2. James Robb, Craigie House; 3. Joseph Neave, Baldovan.

Three Shrubby Calceolarias—1. James Robb, Craigie House; 2. James Mitchell, Mains; 3. Wm. Sandeman.

One Geranium, variegated foliage—1. A. Paton, American Muir; 2. Alexander Roberts, Claverhouse; 3. Duncan Grant, 24 Ann Street.

Three Balsams—1. David Black, Broughty Ferry; 2. G. Philip, Castle Huntly.

Two Petunias, one single and one double—1. W. Balfour, jun., Broomhall, Broughty Ferry; 2. W. Garret, Elmslie; 3. John Heath, Clement Park.

Specimen British Fern—1. P. N. Fraser, Esq., Edinburgh; 2. Dr Lyell, Newburgh; 3. T. H. Miln, Linlathen.

Twelve Succulents—1. John Motion, Seafeld Lodge; 2. John Heath, Clement Park; 3. A. Williamson.

Tree Carnation in Pot—1. John Taylor, Broughty Ferry; 2. J. Ruddiman, Barrack Street.

Two Balsams—1. Andrew Finlayson, Trottick; 2. Geo. Cuthbert, Dudhope Street, Dundee.

Six Dwarf British Ferns, species and varieties—1. Dr Lyell and Edward Moir—equal; 2. John Heath, Clement Park; 3. James Annand, Dundee.

Four Begonias—1. James Robb, Craigie House; 2. John Heath, Clement Park; 3. David Black, Broughty Ferry.

One Fine-Foliaged Plant—1. David Ross, St Martins; 2. W. Brow, Kilmaron; 3. John Motion, Seafeld Lodge.

Two Egg Plants, Dissimilar—1. W. Brow, Kilmaron; 2. Charles Keith, Fern Brae; 3. W. Garret, Elmslie.

Three Cockscombs—1. David Steele, Arbroath; 2. —; James Wilson, Beechwood.

Fern Case, filled—1. John Stewart & Sons; 2. Laird & Sinclair.

Fern Case, filled—1. T. H. Miln, Linlathen.

Fern Case, filled—1. T. Horsburgh, Seafield House.

Window Garden—1. Peter Nicoll, Luthermuir; 2. Andrew Finlayson, Trottick; 3. John Horne, Dundee.

CUT FLOWERS.

Twenty-four Roses—1. John Stewart & Sons.

Twelve Roses—1. T. H. Miln, Linlathen; 2. P. M'Tavish, Balhousie Castle, Perth; 3. Joseph Neave, Baldragon.

Six Roses—1. P. Nicoll, Luthermuir; 2. Alex. Hosie, Claverhouse; 3. E. Moir, Newport.

Twenty-four Dahlias—1. John Stewart & Sons; 2. James Cocker, Aberdeen.

Twelve Dahlias—1. George Phillips, Castle Huntly; 2. Jas. Johnston, Bellfield House, Cupar-Fife; 3. A. Stewart, Glendoich. Extra prize—A. Hosie.

Six Dahlias—1. A. Findlay, Trottick; 2. J. Low, Maryfield; 3. J. Gibson, Pitkerro.

Twelve Carnations or Picotees—1. William Balfour, Broomhall, Broughty Ferry; 2. James Duncan, Springhill; 3. John Reid, Ballindean.

Six Carnations or Picotees—1. W. Sandeman, George Street; 2. John Herd, Longforgan; 3. James Waterson, Patriotic Gardens, Perth.

Twelve Pansies—1. John Hampton, Newport; 2. Jas. Johnston, Bellfield, Cupar-Fife; 3. William Brow, Kilmaron, Cupar-Fife. Extra prize of 10s. 6d. to John Hampton, Newport, for collection of Pansies.

Six Pansies—1. Peter Nicoll, Luthermuir; 2. John Horne, Bucklemaker Wynd; 3. John Herd, Longforgan.

Twelve Fancy Pansies—1. J. Hampton; 2. W. Brow, Kilmaron; T. H. Miln.

Six Fancy Pansies—John Horne.

Thirty-six Gladioli—1. John M'Pherson, Aberdeen; 2. John Stewart & Sons; 3. W. P. Laird & Sinclair.

Eighteen Gladioli—1. W. Brow, Kilmaron; 2. T. H. Miln, Linlathen; 3. John Urquhart.

Six Gladioli—1. Alex. Hosie, Claverhouse; 2. James Mitchell, Mains; 3. Alex. Menzies, Tealing.

Six Stocks—1. D. Irvine, Kincaldrum; 2. P. M'Tavish, Balhousie,

Perth; 3. James Johnstone, Bellfield House, Cupar-Fife.

Three Stocks—1. A. Paton, American Muir; 2. A. Roberts; 3. D. Ramsay, Baldovie.

Twelve Phloxes, Spikes—1. P. Nicoll, Luthermuir; 2. P. M'Tavish, Balhousie.

Six Phloxes, spikes—1. No name; 2. John Gibson, Pitkerro; 3. James Waterson, Perth.

Twenty-four Hollyhocks—1. Stewart & Sons; 2. Laird & Sinclair.

Twelve Hollyhocks—1. D. Ross, St Martins, Perth; 2. William Brow, Kilmaron; 3. Geo. Phillips, Castle Huntly.

Six Hollyhocks—1. Peter Nicoll, Luthermuir; 2. Alex. Roberts, Claverhouse; 3. John Herd, Longforgan.

Six Antirrhinums—1. A. M'Intosh, Broughty Ferry; 2. P. M'Tavish; 3. P. Nicoll.

Three Antirrhinums—1. John Ruddiman; 2. A. Paton, American Muir; 3. Alex. Hosie.

Six Penstemons—1. T. H. Miln, Linlathen; 2. A. Menzies; 3. J. Mitchell.

Three Penstemons—1. John Herd; 2. No name; 3. P. Nicoll, Luthermuir.

Twelve Hollyhocks, spikes—1. Messrs Stewart & Sons.

Six Hollyhocks, spikes—1. W. Brow, Kilmaron; 2. D. Morrison, Inchmartine.

Three Hollyhocks, spikes—1. David Smith, Glamis House; 2. A. Roberts, Claverhouse; 3. Andrew Finlayson, Trottick.

Eight Herbaceous Blooms, one spike each—1. David Smith, Glamis House; 2. John Hampton, Newport; 3. Thos. H. Miln, Linlathen.

Four Herbaceous Blooms, one spike each—1. Alexander Menzies, Tealing; 2. John Horne; 3. David Barrie, Monifieth.

Twelve Pyrethrums, six varieties—1. Messrs Stewart & Sons, Broughty Ferry.

Six Verbenas, three trusses each—1. T. H. Miln, Linlathen; 2. George Reid, Broughty Ferry; 3. David Irvine, Kincaldrum.

Three Verbenas, three trusses each—1. Duncan Grant, 24 Ann Street; 2. John Ruddiman, Barrack Street; 3. J. Gibson, East Litterro.

Twelve Asters, quilled, six varieties—1. John Reid, Ballindean; 2. G. Phillips, Castle Huntly; 3. James Wilson, Beechwood.

Six Asters, quilled, three varieties—1. John Keillor, Kirkton Mains; 2. John Herd, Longforgan; 3. A. Paton, American Muir.

Twelve Asters, flat-petalled, six varieties—1. James Wilson, Beechwood; 2. G. Phillips, Castle Huntly; 3. D. Morrison, Inchmartine.

Six Asters, flat-petalled, three varieties—1. John Herd, Longforgan; 2. Peter Nicoll, Luthermuir; 3. John Ruddiman, Barrick Street.

Six French Marigolds, dissimilar—1. Alex. Hosie, Claverhouse; 2. James Wilson, Beechwood; 3. J. Peters.

Six African Marigolds, three lemon and three orange—1. P. M'Tavish, Bal-

housie, Perth; 2. No name; 3. James Wilson, Beechwood.

Two Hand Bouquets, not exceeding 6 inches diameter—1. John Stewart & Sons.

Two Hand Bouquets, not exceeding 6 inches diameter—1. Alexander Mackie, Camperdown; 2. Alexander M'Intosh, Seafield, Broughty Ferry; 3. D. Ross, St Martins.

One Table Bouquet, not exceeding 12 inches diameter—1. D. Rogers, The Cottage, Ferry Road; 2. P. M'Tavish; 3. John Heath.

One Bouquet of native flowers—1. H. Gordon, Foxmount, Broughty Ferry; 2. Ann D. Clark, Downfield; 3. Miss Anderson, Monifieth.

Dinner-Table Decoration of cut flowers—1. John Stewart & Sons, Broughty Ferry; 2. Messrs Laird & Sinclair.

Dinner-Table Decoration of cut flowers—1. T. H. Miln, Linlathen.

EXTRA PRIZES.

One Hand Bouquet, made up by ladies, not exceeding 6 inches in diameter—1. Miss Jamieson, Seafield; 2. Miss Stow, Ashludie; 3. Miss Gordon, do.

Best Dahlia Bloom in the Show—James Johnston Bellfield House, Cupar-Fife.

FRUIT.

Collection of Fruit, eight varieties—1. William Brow, Kilmaron Castle; 2. A. Mackie, Camperdown; 3. David Ross, The Gardens, St Martin's Abbey.

Four bunches of Grapes, varieties—1. D. Morrison, Inchmartine; 2. John Heath, Clement Park; 3. Alexander M'Intosh, Seafield House, Broughty Ferry.

Heaviest bunch of Grapes—1. John M'Leod, Birkhill, Cupar-Fife.

One bunch of Black Grapes—1. Wm. Brow, Kilmaron Castle; 2. John Johnston, Ashludie; 3. George Gillespie, Kinnettles.

One bunch of White Grapes—1. Geo. Beagrie, Taypark; 2. John Johnston, Ashludie; 3. James Combe, Glencarse.

One Scarlet Melon—1. John Reid, Ballindean; 2. William Brow, Kilmaron Castle; 3. George Reid, Embden House, Broughty Ferry.

One Green Melon—1. George Reid, Embden House, Broughty Ferry; 2. John Heath, Clement Park; 3. George Gillespie, Kinnettles.

One Pine-Apple—1. William Brow, Kilmaron; no second prize; 3. John Heath, Clement Park.

Six Peaches—1. William Brow, Kilmaron; 2. James Combe, Glencarse; 3. D. Irvine, Kincaldrum.

Six Nectarines—1. Thomas Hardie, Springfield House, Cupar; 2. James Combe, Glencarse; 3. David Steele, Seaton House.

Six Apricots—1. D. Campbell, Naughton, Newport; 2. John Urquhart, Errol Park; 3. A. Mackie, Camperdown.

Six Apples for table use—1. R. Matthew, Gourdiehill; 2. James Combe, Glencarse; 3. A Stewart, Glendoick.

Six Apples for kitchen use—1. James Combe, Glencarse; 2. James Robb, Craigie House; 3. T. H. Miln, Linlathen.

Six Plums for table use—1. James Combe, Glencarse; 2. T. H. Miln, Linlathen; 3. D. Irvine, Hermitage, Broughty Ferry.

Six Plums for kitchen use—1. John Reid, Ballindean; 2. D. Smith, Glamis House; 3. Thomas Hardie, Springfield House, Cupar.

Six Pears for table use—1. John M'Leod, Birkhill, Cupar-Fife; 2. James Combe, Glencarse; 3. D. Smith, Glamis House.

Six Pears for kitchen use—1. John

Reid, Ballindean; 2. James Combe, Glencarse; 3. R. Robertson, Castle Hill, Inchtute.

Twenty-five Cherries—1. T. H. Miln, Linlathen; 2. A. Mackie, Camperdown; 3. D. Morrison, Inchmartine.

Twenty-five Strawberries, best-flavoured—1. James Robb, Craigie House; 2. George Paton, American Muir; 3. A. W. Anderson, Sunnybank, Aberdeen.

Twenty-five Strawberries, largest—1. Andrew Anderson, Sunnybank, Aberdeen; 2. D. Smith, Glamis House; 3. D. Irvine, Kincaldrum.

Fifty Gooseberries, twenty-five red

and twenty-five white—1. James Robb, Craigie House; 2. George Paton, American Muir; 3. John Heath, Clement Park.

Currants, white, 1 imperial pint—1. T. H. Miln, Linlathen; 2. James Combe, Glencarse; 3. Thomas Hardie, Springfield House, Cupar.

Currants, red, 1 imperial pint—1. A. Mackie, Camperdown; 2. John Reid, Ballindean; 3. William Brow, Kilmaron.

Currants, black, 1 imperial pint—1. D. Ross, St Martin's Abbey; 2. Thomas Hardie, Springfield House, Cupar; 3. Joseph Neaves, Baldovan.

VEGETABLES.

GARDENERS.

Basket of Vegetables, ten varieties—1. James Johnstone, Bellfield House, Cupar; 2. James Wilson, Beechwood; 3. Thomas Hardie, Springfield House, Cupar.

Two Cauliflowers—1. John McLeod, Birkhill, Cupar Fife; 2. R. Barry, Royal Asylum, Dundee; 3. D. Smith, Glamis House.

Two Cabbages—1. Geo. Paton, American Muir; 2. Peter M'Tavish, Balhousie Castle; 3. A. Mackie, Camperdown.

Two Cabbages, red—1. John Urquhart, Errol Park; 2. John Reid, Ballindean; 3. James Robb, Craigie House.

Two Savoys—1. John Reid, Ballindean; 2. John Taylor, Foxmount; 3. Peter M'Tavish, Balhousie Castle.

Two Beet, red—1. John Taylor, Foxmount, Broughty Ferry; 2. James Robb, Craigie House; 3. G. Phillips, Castle Huntly.

Two Cucumbers—1. Alex. M'Intosh, Seafeld House; 2. P. M'Tavish, Balhousie Castle; 3. John Reid, Ballindean.

Twenty-five Pods Peas—1. D. Irvine, Kincaldrum; 2. D. Black, Douglas House, Broughty Ferry; 3. J. S. Marshall, Dryburgh Villa.

Twenty-five Pods Kidney Beans—1. John Urquhart, Errol Park; 2. William Brow, Kilmoran; 3. James Robb, Craigie House.

Twelve Potatoes, Kidney variety—1. T. H. Miln, Linlathen; 2. John Urquhart, Errol Park; 3. John Taylor, Foxmount.

Twelve Potatoes, round—1. D. Campbell Naughton, Newport; 2. T. H. Miln, Linlathen; 3. George Gillespie, Kinnettles.

Six Parsnips—1. John Reid, Ballin-

dean; 2. D. Morrison, Inchmartine; 3. John Urquhart, Errol Park.

Six Leeks—1. P. M'Tavish, Balhousie Castle; 2. John Urquhart, Errol Park; 3. D. Campbell, Naughton.

Six Onions—1. James Johnstone, Bellfield House; 2. P. M'Tavish, Balhousie Castle; 3. D. Campbell, Naughton.

Two Heads Celery, white—1. Wm. Cowieson, Garry Cottage; 2. James Combe, Glencarse; 3. P. M'Tavish, Balhousie Castle.

Two Heads Celery, red—1. William Cowieson, Garry Cottage; 2. J. Combe, Glencarse; 3. P. M'Tavish, Balhousie Castle.

One Gourd—1. John Reid, Ballindean; 2. James Robb, Craigie House.

One Vegetable Marrow—1. William Brow, Kilmaron; 2. James Robb, Craigie House; 3. John Reid, Ballindean.

Two Curled Greens—1. Alexander Hosie, Claverhouse; 2. James Robb, Craigie House; 3. P. M'Tavish, Balhousie Castle.

Four Turnips—1. James Johnstone, Bellfield House; 2. A. Stewart, Glen-doick; 3. No name.

Six Carrots—1. D. Morrison, Inchmartine; 2. John Taylor, Foxmount; 3. T. H. Miln, Linlathen.

Collection of Gourds—1. John Reid, Ballindean.

AMATEURS.

Basket of Vegetables, six varieties—1. Alexander Hosie, Claverhouse; 2. Peter Nicoll, Luthermuir; 3. John Ruddiman, Barrack Street.

Two Cauliflowers—1. Alex. Paton, American Muir; 2. Peter Nicoll, Luthermuir; 3. John Gibson, East Pitkerro.

Two Cabbages—1. George Phillips, Castle Huntly; 2. John Herd, Longfor-

gan; 3. Alexander Paton, American Muir.

Two Cabbages, red—1. D. Ramsay, Baldovie.

Two Savoys—1. A. Hosie, Claverhouse.

Two Beet, red—1. Andw. Finlayson, Trottick; 2. A. Hosie, Claverhouse; 3. James Scott, Rosebank.

Two Cucumbers—1. T. Horsburgh, Seafield House.

Twenty-five Pods Peas—1. P. Nicoll, Luthermuir; 2. John Hosie, Dundee; 3. John Gibson, East Pitkerro.

Twelve Potatoes, Kidney variety—1. A. Hosie, Claverhouse; 2. John Gibson, East Pitkerro; 3. P. Nicoll, Luthermuir.

Twelve Potatoes, round—1. John Keillor, Kirton Main; 2. John Gibson, East Pitkerro; 3. A. Hosie, Claverhouse.

Six Parsnips—1. James Mitchell, Mains; 2. James Waterson, Perth; 3. Alexander Hosie, Claverhouse.

Six Leeks—1. Alexander Hosie, Claverhouse; 2. John Keillor, Kirkton Mains; 3. P. Nicoll, Luthermuir.

Six Onions—1. R. Robinson, Castle Hill, Inchtute; 2. A. Hosie, Claverhouse; 3. James Mitchell, Mains.

Two Heads Celery, white—1. R. Nicoll, Wellbank; 2. P. Nicoll, Luthermuir; 3. A. Finlayson, Trottick.

Two Heads Celery, red—1. R. Nicoll, Wellbank; 2. P. Nicoll, Luthermuir; 3. A. Finlayson, Trottick.

Two Curled Greens—1. A. Robertson, Claverhouse; 2. Duncan Grant, 24 Ann Street; 3. Jas. Mitchell, Mains.

Two Heads Parsley—1. John Gibson, East Pitkerro; 2. D. Smith, Glamis House; 3. John Horne, Dundee.

Four Turnips—1. A. Roberts, Claverhouse; 2. A. Hosie, Claverhouse; 3. A. Paton, American Muir.

Six Carrots—1. John Hird, Lonforan; 2. Jas. Mitchell, Mains; 3. P. Nicoll, Luthermuir.

STRATHEARN HORTICULTURAL SOCIETY.

THE annual exhibition of this Society took place in the Masons' Hall, Crieff, on the 7th of last month, and was considered the best the Society ever held. The fruit was remarkably fine, some of the bunches of grapes weighing from 7 lb. to 8 lb.; but as we cannot afford space to give the prize-list, we forbear giving any names to avoid the charge of being invidious. The judges, office-bearers, and members of the Society dined together at the Drummond Arms Hotel in the afternoon, when the usual loyal and patriotic toasts were given and responded to.

REVIEWS.

'An Illustrated Natural History of British Moths,' with life-size figures from nature of each species, and of the more striking varieties. Also full descriptions of both the perfect insect and the caterpillar, together with dates of appearance and localities where found. By Edward Newman, F.L.S., F.Z.S. London: W. Tweedie, 337 Strand.

This is a beautifully-got-up volume, which, apart from its being an exhaustive treatise on the subject it refers to, will form a handsome ornament for the drawing-room table; and we cordially recommend it to all who take an interest in British moths, as a guide by which they can name and arrange all their captures in this department of natural history.

'Choice Stove and Greenhouse Plants,' comprising descriptions of upwards of one thousand species and varieties, accompanied by instructions for their cultivation and management. By Benjamin S. Williams, F.R.H.S., Victoria and Paradise Nurseries, Upper Holloway, London.

This is a handsome volume of 330 pages, with a fine coloured plate by Fitch

of the beautiful *Anthurium Scherzerianum*. The work is published and sold by the author, and is the result of many years' experience by one of the most successful plant-growers in this or any other country. Like his other works, it is plain and practical, and should be in the hands of all who wish in any degree to excel as cultivators.



PRESENTATION.

THE old pupils of Mr M'Kie, gardener to the Dowager-Duchess of Athol, Dunkeld, availed themselves of the occurrence of the International Exhibition in Edinburgh on the 8th of last month to present him with a handsome gold watch and chain, and a brooch for Mrs M'Kie, in token of their high sense of his many excellent qualities both of head and heart.

The presentation was made in the Ship Hotel by Mr Maxwell, overseer, West Shandon, Helensburgh. Such exhibitions of kindly feeling are alike honourable to all concerned.



OBITUARY NOTICES.

It is our painful duty this month to record the death of Mr Jas. Veitch, senior partner of the firm of James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea. This sad event took place suddenly on the morning of the 10th of last month, at his residence, Stanley House, King's Road, at the comparatively early age of fifty-four.

In the death of Mr Veitch horticulture has lost its most devoted patron.

Those who had, as we had the pleasure of having, an intimate acquaintance with Mr Veitch, need not be informed with what zeal and devotion he entered upon every project that could advance the science and practice of his favourite art; and with what success, honours and awards from all parts of Europe amply testify.

We recently had the pleasure of spending a few days with him, and under his own guidance were shown his private collection of Orchids, set apart in some recently-erected houses behind his private residence for special experiments. Here we saw lots of Hybrid Orchids, others being crossed, and their seed-pods swelling, new modes of growth and treatment being adopted with others, all with a view to add new gems to that horizon he had already so much emblazoned both by introductions from foreign climes, and by the results of his successful cross-breeding. We were at that time made aware from his own lips that his health was exceedingly precarious; yet in view of the important labours he was carrying on, and for the sake of his family and the public generally, we earnestly hoped the sad event might be long deferred. It has been otherwise determined, and we are certain we are but the exponents of all who take an interest in horticulture, when we present our sincere condolence to the firm and family from which such a stay has been removed.

In the death of Mr Robert Thomson, of the R. H. S. Gardens, Chiswick, horticulture has lost one of its most painstaking pioneers. Modest and retiring in manner, he was always ready to give place to men much his inferior in ability.

On this ground alone can we account for a man who possessed such a store of varied knowledge not having attained a higher position in the horticultural world. Mr Thomson's technical knowledge of hardy fruit was perhaps the most reliable of any man of his day, and this knowledge was always at the service of any one who asked for it. In this way alone he rendered services that entitled him to a much more ample public recognition than he ever received. As an author, Mr Thomson produced a work that will long be consulted with advantage, 'The Gardener's Assistant.' Dr Lindley's great work, 'The Theory and Practice of Horticulture,' was also largely indebted to his observant mind.



Notices to Correspondents.

"AN AMATEUR" would feel much obliged to the Editor of the 'Gardener' for a few hints about the proper cultivation of Tuberoses. They were put, according to directions, in bottom-heat in the spring, thence transferred to a small greenhouse. They are now flowering, but so drawn up as to be totally unfit for drawing-room decoration.

[We shall be obliged to any correspondent who has grown Tuberoses successfully if he will give us a paper on the subject, and gratify the above writer.—ED.]

"R. G. R."—The insect on your Vines is no doubt the mealy bug. When you prune them this autumn, remove all the loose bark on them, even beneath the line of the soil, and then wash them well with a hard brush and soap-and-water; afterwards paint the canes over with a mixture of two ounces soft-soap, two gills tobacco-water, and clay enough to make the whole of the consistency of paint, to two quarts of water. This should get rid of the pest, but it will at times be found on the roots 6 inches under the soil, from which it will emerge in the spring. When you see many ants running on your Vines, suspect brown-scale or mealy bug, and wash them off by using a brush, soap, and water.

A "SUBSCRIBER" IN THE NORTH.—Telegraph Cucumber will suit you for winter. If you have two pipes for bottom-heat, you require no hot dung. Good loam and some dung, and, if at hand, a few bones about the size of peas, and some charcoal: a yellow loam will do well. When you water, give a good soaking, and keep the soil moderately moist during the winter, but not so much so as might be judicious during summer.



THE GARDENER.

NOVEMBER 1869.



THE KITCHEN-GARDEN.

NO. VI.

(Continued from page 354.)

ONIONS.



THE Onion is referred to as a popular vegetable at a very early period of the world's history ; and it is perhaps a vegetable that is more universally cultivated than any other that is embraced in garden-cropping. It is cultivated by hundreds of bushels for royal households, and to a proportionate extent it finds a place in every grade of garden down to the cottage "yard." Although extensively grown in Britain, so great is the consumption of it, that more than a thousand tons are annually imported, principally from Spain and Portugal, in which countries it is an important article of commerce ; for, beyond what is brought to this country and sent to others, it is a vegetable which is much more extensively consumed by the Spanish and Portuguese than is common in this country ; in fact, it forms for them an important part of their daily meals. Onions are esteemed, in the first place, on account of their flavouring quality. They are at the same time among the most nutritious of vegetables—containing, as they do, 30 per cent of gluten, the presence of which in vegetables determines more than anything else their value in point of nutriment. It is therefore probable that the Portuguese is as well off, in point of nutritious aliment, with his dry bread and Onion, as the English labourer is with bread and cheese.

The Onion is a vegetable of great antiquity in Africa, having been cultivated and much esteemed there two thousand years before Christ ; and in the food of the Egyptians it still holds an important place. They

roast them along with their meat, and relish them so much that they are credited with the earnest wish that Onions may form one of the dainties of their paradise. This vegetable has been cultivated from a very early period in Britain ; and more than likely it was introduced from Continental countries, into which it had no doubt been brought from the more ancient nations of the East. Onions grown on the Continent are much more mild and pleasant to the palate, but not so good for seasoning, as the smaller productions of this country, which are more pungent in flavour.

The Onion crop is looked upon as one of first-rate importance in every garden, and the sowing-day ranks as a sort of red-letter day in the garden calendar. Many cultivators have some peculiar way in which the operation is performed ; and in not a few cases a deal of unnecessary work and waste of time are attached to it. Few crops are more affected by soils and situations ; hence in some instances a satisfactory crop can nearly always be calculated upon, while in others the crop is a very precarious one.

A dry well-worked soil, to the depth of at least 2 feet, has much to do with healthy well-matured bulbs. They send their roots down deep ; and if the staple allows of the ground being worked 3 feet deep, so much the better. It is more upon a deep well-worked dry staple than on superfluous doses of manure that a good well-ripened crop of bulbs depends. Such bulbs as are small-necked, firm, and in a condition to store and keep well, are not so likely to result from heavy coatings of manure merely dug into the ground, as from a moderate amount of manure, in a thoroughly decomposed state, deeply and regularly mixed with the whole of the soil. The Onion crop makes a good succession to Celery, or rather the latter leaves the ground in good condition for the Onion crop. The production of good Celery necessitates a thorough breaking-up of the ground ; and the liberal application of manure required for the one, when thoroughly mixed with the ground, is almost enough for the Onion crop. The ground should be trenched across the old Celery trenches, and the manure well broken up and thoroughly mixed with the staple as the operation goes on. The trenching should be performed early enough to allow the ground to benefit from it, which usually occurs in January and February. It is well to ridge the surface or leave it rough, presenting a large surface to the action of the atmosphere. The two bottom-spits, on the other hand, should be well broken, and the sub-soil forked up and left in the bottom.

Situation is a matter of considerable importance—shelter from high winds, and exposure to the sun ; for if the tops get damaged by wind before the perfecting of the bulbs, they do not swell nor ripen properly ;

and shade from the sun by trees or walls has the same effect. If the soil and situation be damp and low, it is a good plan to throw the ground into beds running north and south, and to raise them by throwing the ground out of the alleys on to the beds, as is often practised in growing Potatoes in what are termed lazy-beds. The Onion, to grow and bulb well, likes a warm sunny situation and a somewhat tenacious loamy soil, well drained. Light sandy soils are not likely to produce fine Onions; and to improve these, heavier soil is often mixed with them. Light soil should also be well trodden and rolled both before and after the crop is sown.

Local peculiarities of soils and climate should regulate—within certain limits, of course—the seed-time of the Onion, and not days and dates. There is nothing gained by early sowing in wet localities and heavy cold soils. Under such circumstances, the middle or end of March is sufficiently early; while on friable loamy soils and in earlier localities I have always taken the first favourable opportunity of sowing after the 20th February. A fortnight or more time is of no consequence as compared to the state of the soil; and it is better to wait than to sow when the surface is wet and in bad condition.

On very light, dry, shallow soils, where the crop has a tendency to ripen off very small and prematurely when overtaken by droughts, such as have occurred the two last summers, it is a good plan to sow part of the crop at least in autumn. The first week in September is a good time to sow; if sown earlier they get too strong, and are all the more likely to run to seed in spring. The advantage of sowing in September on such soils is, that the Onions are much earlier and further advanced in size before hot dry weather sets in to stunt and ripen them before an ordinary size is attained. Another plan, sometimes practised on poor shallow soils, is to sow thick on poor soils, and considerably later than is usual for spring sowing. A crop of very small bulbs is thus produced; and these, carefully wintered and planted on well-enriched soil 6 inches between the rows and 4 inches between the bulbs, produce fine crops. In Portugal they sow thickly in beds in November, and transplant them in spring on to very rich soil; and in this manner their fine large bulbs are produced. All other things being equal, the size of the bulb is largely affected by the amount of room allowed to each. The more room within a certain limit, of course, the larger the bulbs produced, and *vice versâ*.

The two systems by which the seed is put in the ground—the drills, and broadcast in beds—have each their advocates. So far as the quality of the crop when ripe is concerned, the merits of both may be said to be about equal. On account of the greater speed and ease with which the crop can be put in, and afterwards freed from weeds, the

regularity with which it can be thinned, and the smaller quantity of seed required, the drill system is much the preferable. When sown broadcast in beds the ground looks very unsightly (a point not to be lost sight of in all well-regulated gardens), unless the beds are very nicely edged, the doing of which requires a deal of labour and consumption of much valuable time. Then there is the stooping and crawling and weeding by the hand, instead of the speedy destruction of weeds by the hoe, which make a great difference in favour of the drill.

To do the work nicely with drills, first level the ground with the spade, tread firmly with the feet, and make the surface smooth and fine with the rake; draw the drills 1 foot apart, and sufficiently deep, so that the seed may not be disturbed at the final raking. Deep sowing is to be avoided, because the more on the surface the bulbs are formed, they are the more likely to ripen well and be free from thick-necked bulbs, which never keep well. The drills are most speedily and easily filled in with the feet; and especially on light soils the ground should afterwards be trodden: the nearer it approaches to sandy soil, the more firmly it requires to be trodden. The final raking will require to be but slight, and, last of all, a light roller may be passed over the ground in cases where the soil is light and porous.

The proper thickness to sow the seed is a point that has to be decided by several considerations. Thicker seeding is necessary in cold heavy soils than in lighter warmer soils. Very thick or very thin seeding is neither of them desirable. It is, however, more comfortable to have a good many to thin out, than to have to transplant at a time when the season is not most favourable for the latter operation.

As soon as ever the young plants are discernible in rows, the Dutch hoe can be very lightly passed up between the rows, to kill seedling weeds and break up the crust of the soil. This operation should be performed at intervals, with the view of keeping the ground free from weeds, and especially in dry weather preventing the soil from cracking, as well as the evaporation of moisture. The first and partial thinning should be done when the plants are large enough to bear drawing without breaking, and should leave the young plants about 2 inches apart. The second thinning should not be too hastily done on soils where the maggot is troublesome. It is safe to defer the last thinning until they begin to form their bulbs, and this should leave the crop 4 to 5 inches apart, which gives space enough for moderate-sized and useful bulbs. The thinning should be performed with care, so that those left are not broken nor bent, till they fall over of their own accord in the natural process of ripening. Those of them which show signs of being thick-necked after the bulk of the crop has collapsed, should be bent

down with the hand to stop further growth, and induce them to ripen. When ready to harvest, which is known by their roots giving way and being easily pulled up, remove them to a sunny place, and lay on a gravel walk or on boards, to be frequently turned, and well sunned and dried for fourteen days. Of course the state of the weather may render this a long process outdoors, and may require that they be removed to an open, dry, airy shed ; but it is preferable to have them well sunned if the weather be fine. When thoroughly dry they should be removed to a dry airy loft, or some similar place, to be either laid on shelves or tied up into ropes, which work can be done in wet weather. The cooler and drier they are stored, the longer they keep without rotting or growing.

In most families, Onions for pickling are in demand, and are best when the size of a small marble. The silver-skinned, sown thickly on very poor hard soil about the end of April, answer this purpose. They should be drawn immediately they are perfectly ripe, and before they begin to mould in the ground, which impairs their quality, or at all events their appearance for pickling.

To get large Onions to succeed the spring-sown or main crop, the Tripoli, sown about the 12th August, or perhaps a week earlier in late districts, will give good-sized bulbs by the end of May, and continue the supply till the spring-sown ones are a considerable size. Most persons have their favourite sorts for the main crop. Those generally considered best are the Strasburg, James's Long Keeping, and White Globe. There are many other varieties more or less useful, but these three are the most generally acknowledged as desirable for extensive cultivation. James's Long Keeping is probably the best-keeping Onion in cultivation, and is otherwise a fine Onion.

On soils where the maggot is most troublesome, it is recommended to grow a good proportion of the ground with Potato Onion. This increases itself by the production of young bulbs from the parent. Moderate-sized bulbs, planted in February, are ready for harvesting in July, and sometimes earlier. This is a hardy variety, and resists the attacks of insects better than the common Onion.



THE FAILURE OF THE PEACH CROP OF 1869.

THE almost universal failure of the Peach crop this season is not by any means easily accounted for ; it may be said to be unprecedented. I am aware that there have been seasons, in particular districts, in which the crop has been equally deficient, but then the loss has been

occasioned through some well-known agency. Severe winters have in some instances destroyed the trees themselves; the bloom and fruit in embryo have been injured by spring frosts where protection had been used as well as where it had not been employed; neglect of the trees the preceding season, together with other causes more or less explainable, have often occasioned the complete loss of a crop.

This season's failure, however, cannot reasonably be attributed to any of the above-mentioned causes. Some other hypothesis may be safely advanced before we correctly ascertain the real cause or causes of such a general failure of one of our best fruits.

It is the opinion of wise amateurs, and even experienced gardeners recommend in their directions to those that they believe require a certain amount of teaching, that protection to the bloom from spring frosts of the more tender and early-flowering kinds of fruit-trees—such as Apricots, Peaches, and Nectarines—is necessary to secure a crop. This is certainly good advice so far as it goes; but might I ask, Is the evil not often done before protection is thought of? I would also ask, Whether protection from spring frosts is all that is required? I rather doubt it. Those who are in the habit of protecting their trees ever so carefully, now and then sustain the loss of a crop, as well as those do who allow their trees to take their chance. This season, particularly, protection has not availed in any case that I am acquainted with in this neighbourhood (Mid Kent). From careful observations which I have made for several years past as to the time of blooming of the Peach (which time of blooming varies but slightly, unless there is a long duration of one sort of weather), I invariably find that the later the trees are of blooming, the more certainty there is of a crop. During the month of February last, sunshine prevailed more than usual for that month of the year all over the country. The consequence was, that trees on a southern aspect were excited into bloom before the danger of an adverse change in the weather was over. March continued throughout damp and cloudy, with an unusually low temperature, which was anything but favourable for trees in bloom. The long-dormant state of the sap, after it had been once excited, no doubt was the principal cause of the fruit dropping off. By shading Apricots, Peaches, and Nectarines growing against a south wall from the direct rays of the sun during the latter part of February and the beginning of March, thereby retarding the blooming period until all danger of a check to the sap after it had commenced its flow upwards was past, a crop might at all times be relied upon.

In the case of Orchard-houses, where a steady but increasing temperature could not be maintained, the failure is equally as bad as it is with trees in the open air. With Peach-houses, on the other hand,

where a command of fire-heat was available, the crop is abundant. We have a Grosse Mignonne Peach-tree here, measuring over 30 feet length-ways, on a 16-feet wall (east aspect). After thinning and leaving a fair crop, there are over fourteen dozen handsome and well-coloured fruit upon the tree at the present time, many of the fruit measuring 10 inches in circumference. This tree was partly shaded in the early season by the dense branches of several tall Elm-trees growing outside of the garden. The same variety of Peach on a south aspect, together with both early and late sorts, have this season proved a total failure.

An Elruge Nectarine-tree, growing between a Royal George and a Noblesse Peach on a south aspect here, is a perfect picture. This tree was experimented upon during the month of February last. It was shaded with double mats nailed to a wooden frame, which was placed erect about 2 feet from the wall or tree. The result is a splendid crop. I only regret that all the other trees on the south aspect have not been protected in the same way—not from frost, but from the alluring brightness of the sun.

WM. CHISHOLM.

BOUGHTON PLACE, NEAR MAIDSTONE.



NOTES ON HARDY HERBACEOUS PLANTS.

Cortusa embraces only one species, the *C. Matthioli*. It is near akin to *Primula*, and in general appearance and habit of growth resembles some of the species of that family. It is found, in company with several of the Alpine *Primulas*, inhabiting moist valleys at high elevations on the Alps of Italy and neighbouring countries, and is therefore best adapted for cultivating on rockwork, where partial shade and abundant moisture can be given it in the growing season. In warm sheltered situations, where moisture abounds in the atmosphere and the soil is naturally or artificially well drained, it may succeed in the open ground; but there are very few places in this country where these conditions exist in the degree necessary to the wellbeing of this little plant. It will therefore be safer to keep it on rockwork, of which it is more characteristic than the open dressed border, and in cold wet localities less or more of it should be kept in pots and wintered in a cold dry frame to provide against loss of stock. Rich loam, or a little peat and loam, with a liberal allowance of sharp sand, forms a congenial compost. Whether in pots or otherwise, it must be remembered that ample drainage should be provided, and copious supplies of water during the time it is making growth. Propagate by seeds and division,

the latter immediately after flowering, and the seeds in the way recommended for *Primula*. It is rather a handsome little plant, with nothing very showy either in the mass or colour of the flowers, but will always be interesting to those who take a delight in the simple beauty of Alpine plants. The leaves are nearly round, heart-shaped at the base, very slightly lobed, and sharply toothed. The flower-stems are about 6 or 8 inches high, terminating in a small loose umbel of few small bright red flowers on drooping foot-stalks; the corolla is slightly bell-shaped, and deeply divided in five segments. Flowers in April, May, and June.

Soldanella comprises a most interesting group of the smallest and most beautiful of Alpine plants. It is nearly related to *Cortusa* and *Primula*, but is easily distinguished from either by the cup-shaped deeply-fringed corolla, and by the style of the foliage, which, with the simplest variation, is the same in all the species, and at the same time very distinct from that of any of the species of the related genera. They are found at very lofty elevations on the Alps of Europe; two, at least, of the species ascend to near the line of perpetual snow. To be successful with them, we must, as near as circumstances will permit, imitate the climate and other conditions of their native homes. I have seen them succeed very fairly in an open peat border in Ireland, but they are soon lost if any attempt is made to cultivate them in the open border in the majority of localities—and, indeed, success is not always sure on rockwork; but with proper care and attention they are very manageable in pots, wintered in frames, and bloomed there, and transferred to the rockwork to make growth. A moderately shady position is best, and they would suffer a constant state of saturation, and be the better for it while growing, provided the drainage is good; but when ample growth is made, less moisture is necessary. In nature they are deluged with snow-drip while growing, but it must be remembered that on the steep mountain-sides and rocky places on which they are found it is impossible that stagnation can take place. In winter they will endure much cold, but suffer disastrously from damp; the frame, therefore, in which they are wintered should be cool and dry; and if they are left on the rockwork out of doors, a ledge projecting overhead, so as to protect from battering showers, would be a good safeguard. Propagate by division immediately after flowering, and by seeds sown as soon as ripe, in a cold frame.

S. alpina has small round leaves, dark-green, smooth, and somewhat leathery, on short stout stalks. The flower-stalks are erect, bearing two or three bright purple, slightly bell-shaped, deeply-fringed flowers. Flowers in April or May. Sandy peat and loam. Very high elevations on the Alps, Pyrenees, and Apennines. .

S. montana is closely allied to *S. alpina*; the leaves are similar in form but larger, and the flowers are more numerous in the umbel, less deeply fringed, and paler purple. Flowers in April and May. Found in moist open woods at high elevations on the mountains of Austria and Bohemia. Very sandy peat and loam, the peat predominating.

S. minima is perhaps the prettiest, as it is also one of the least, of the group. The leaves are very small, and nearly round or kidney-shaped. The flower-stalks are erect but slender, bearing usually only one comparatively large flower, whitish, and veined on the inner surface with pale purple, the fringe not deep. Flowers in April and May. Mountains of Switzerland, Styria, and Carniola. Same soil as for the two preceding species.

S. pusilla is very beautiful, but rather rare. It is in the way of *S. minima*; the flowers, however, are bright blue, and I have met with an almost copper-coloured variety that is interesting. From the Alps of Switzerland. Flowers in April and May. Sandy peat and loam, the peat predominating.

Dodecatheon—‘American Cowslip’—is a small group of pretty well known and much-admired hardy border plants. They are of simple accommodating nature, doing well in most soils and situations, but reach the greatest perfection in deep moist rich loam and in partial shade. Propagate by division in early spring, or by seeds, which they produce freely.

D. Meadia is the best-known species. The leaves are all radical, stalkless, oblong lanceolate, thin and soft in texture, and pale green, obscurely toothed, dying off shortly after flowering. The flower-stems are a foot or more high, bearing a considerable umbel of elegant drooping flowers of interesting shape. The flowers are rosy-purple, and divided into five broad much-reflexed segments. Flowers in April, May, and June, and in the north often blooming well through July. There are several varieties of this species of greater or less distinctness, which are often vended as species. The best of them are, *D. M. elegans*, syn. *giganteum*, remarkable for greater luxuriance in all its parts, and rather more delicate colouring; *D. M. album*, with white flowers suffused with rose; and *D. M. lilacinum*, with rosy-lilac flowers.

D. integrifolium has oblong leaves destitute of teeth. The flower-stems are from 6 to 12 inches high. The inflorescence is the same as in *D. meadia*, but the divisions of the corolla are more acute, and the colour is rosy-crimson. Flowers April, May, and June. W. S.



THE CULTIVATION OF HARDY FRUITS.

(Continued from page 465.)

THE PLUM.

WE now beg to call the attention of the reader to the cultivation of the Plum, which may be classed as the third in point of importance among the larger-growing hardy fruits. No well-regulated, in fact no garden of any pretensions whatever, ought to be without a well-selected assortment of Plums. If these are properly chosen, and receive ample treatment, there will be no difficulty in having a regular supply every day, both for the table and kitchen use, from the beginning of August till the end of November, or even in later seasons till the beginning of December.

The Plum is generally propagated by budding or grafting, although several varieties—such as the Damson, Wentworth, and several others of the more common varieties—may be increased either by layers or suckers. When thus propagated, they form large vigorous trees, which are often barren for many years. Root-pruning does not even have so much effect upon them as in the case of grafted or budded trees. The Damson is said to reproduce itself pretty truly from seed; of this, however, we have no experience; and looking at the matter from a theoretical point of view, we certainly would not recommend it, as we would expect a rank, coarse-growing tree, which would be loath to bear and vigorous to grow. The stocks in most general use for grafting or budding upon are the Mussel, which produces the largest, the best, and longest-lived trees, and is therefore the best adapted for working upon for large standards. The white Pear Plum and the St Julian are also pretty freely used, and answer the same purpose very well. The Magnum Bonum has also been used at times, as well as several others of the stronger-growing varieties, but they do not answer so well as those we have already enumerated. Where a dwarf habit and early fertility are much in demand, the *Prunus spinosus*, or Sloe, is sometimes used, but these often prove very shortlived and tender-constituted plants. The next best are the Mirabelle Plum or the Damas Noir, which both tend to dwarf the tree, and at the same to induce earlier fertility.

The first consideration with those who wish to embark upon the propagation of the Plum will be the production of stocks. As already hinted, these are the best when produced from seed of whatever variety may be chosen upon for this purpose. Where layers or suckers are employed for this purpose they often prove very troublesome in again producing a yearly crop of the same, to the great injury of the tree as well as the crop. The best time to sow the stones is in November.

The French leave this over till spring. Seeing how much better, however, is their climate for germination and after-progress, they may and do produce as good, if not better, stocks than we do by this method. By our sowing in November, the seeds become soft and ready to burst ere the spring, so that the young seedling has got a greater length of time to grow and perfect its wood than if only freshly planted in spring. A nice bed, according to the quantity of seed about to be sown, ought to be prepared early in November. It should be made nice and rich by the introduction of leaf-mould and old mushroom-dung; and if the soil is of a stiff clayey nature, sand or some other cutting material should also be introduced. The drills ought to be about 1 foot apart, and from 2 to 3 inches deep, according to the sizes of the seed. Into these drills the seeds may be deposited at distances of about 3 inches apart. By the month of September following, the greater part of the young plants will be ready for transplanting out into nursery-lines. When this operation is being performed the roots may be shortened considerably, and the top of the young shoot cut back to the first firm, plump, and ripe bud. They may be planted out into lines 2 feet apart and 1 foot between each plant in the line. Here they may remain with no other attention until the following season, except having the soil regularly kept clean and free from weeds. If, however, there should be any nice strong shoots which it may be desirable to keep for working at standard height, these ought now to be selected and trained up by a stake in the manner already described when treating of the Pear. The following autumn they ought all again to be transplanted, having their roots thoroughly cut back, as already directed, and replanted in the same manner and at the same distances as recommended for the Pear at the same stage—viz., 2 feet.

Where new varieties of the Plum are wanted, we would in this, as in all other cases, recommend that all the flowers intended to produce seeds for young trees ought to be regularly impregnated, making the selection of parents the primary object, choosing a female of a strong healthy and hardy constitution free from all sorts of diseases; to cross with this, the male parent should possess at least flavour, but if flavour, size, health, and constitution can all be obtained in one, so much the better. We would further recommend every precaution to be used to avert any probability of impregnation from any unknown source. For full particulars regarding this, we refer the reader to our article upon the Pear, where he will find this more fully explained. The stones must be saved, and sown at the same time as if they were intended for stocks, and receive the same attention with regard to root-pruning,

&c. At the end of the first season's growth, if it should prove a strong-growing variety, the young shoot of the seedling will be strong enough to graft or bud from. If this should be the case, some old tree in good health, but not vigorous, ought to be selected to put it upon. By placing a graft upon such a tree, in the course of two or three years the variety might be thoroughly proved and tested as regards its qualities of size, flavour, colour, and appearance.

Budding appears to be more generally adopted by nurserymen for propagating the Plum than grafting ; but whether it is considered by them as a better method or not, we are not aware. It may be that they adopt this plan to enable them to get another opportunity for grafting in the succeeding spring, should the bud fail to take upon the stock. Good trees can be got by adopting either method ; and if we were asked the question, what method we would prefer, if we were to be confined to one of the two ? we certainly would say grafting, as we consider it equally sure ; and, at the same time, we may be able to get a young tree possessing two or three branches the first year by grafting if stock and scion are both strong, whereas by budding one shoot is invariably the result. Strong-growing varieties should be grafted near the ground, say from 9 inches to 1 foot high ; and if wanted for a standard, have the leader trained to a stake and led up to where it may be desirable to form a head. Where the variety to be worked is weak and slow of growth, if it is wanted to form a standard the stock should be grown for the purpose, and be grafted at standard height. When scions are taken off for grafting purposes, more knowledge and discrimination are necessary for the selecting of Plums than perhaps any other variety of fruit. Much of the gum and canker which we see amongst young Plum-trees is the result of want of attention to two simple little facts—viz., the taking off the scion while the parent tree is at rest, and also the heading-down of the stock before the rise of the sap. If these two facts be neglected, it will be found almost an impossibility to form a union ; and should a union be formed, the almost inevitable result will be canker and gum. This may be one reason why nurserymen prefer budding, as this operation is done at a very different season, and consequently there is less chance of these diseases attacking the young trees. December is the month we should select for taking off scions of young Plums, as this, of all the months of the year, is the one when all vegetation is most thoroughly dormant. These should be taken off with care, especially to see that the young shoots possess plenty of wood-buds, and no, or as few as possible, flower-buds. These, when taken off, should be put in by the heels into the soil to await the grafting season. The stocks should also be cut back to their desired height

about this time, at least to within an inch or so of that height. Our object in leaving a little more than what is needed is to be prepared in case frost might crack the stock, so that we can spare a piece of the top to cut it down to the sound wood. The time when this operation may best be performed will depend on circumstances, conditions, and varieties. We might say from the middle of March to the middle of April is the best or only time to do this ; but in place of doing so we will simply say that the best time is when the stock is fairly on the move, and the scion shows signs of starting. In this, as in all other cases, we prefer the stock to be in advance of the scion, and the reasons we give in this case are identical with those given when treating upon this point in a former article. In the case of grafting Plums, it is sometimes necessary to take the top or terminal portion of the shoot. Especially where the trees from which the scions are taken are very old is this the case, as many of the shoots made by such trees seldom possess more than one or two wood-buds ; and where there is only one, that one is always terminal. In the case of young healthy trees, this will not be necessary, as they produce wood-buds in abundance, and the graft may be selected from the best and ripest portion of the shoot. Any of the modes of grafting which we have recommended when speaking of the Pear and Apple will do for the Plum. As it is sometimes difficult to form a union in grafting the Plum, we would recommend drawing the earth up over the point of union ; which, by excluding the atmosphere and keeping the scion in a more moist condition than it could be without, will greatly facilitate a union, and will at the same time keep the graft free from the violence of the storm. This of course only applies to those trees grafted a few inches from the ground ; those grafted at standard height must be steadied by a stake, and have a good supply of moss tied over the clay after the operation is finished. This moss must be kept regularly moistened in dry weather, and when regularly attended to in that way will be of much service in effecting a union.

Where budding is resorted to, shield-budding we consider to be the best ; and, as a consequence, the autumn is the time to perform it. Circumstances alone can definitely point out the date, but, as a rule, at the beginning of August or end of July will be found to answer the purpose best. The beginner in matters of this sort must be very careful not to waste his labours in vain by taking flower in place of wood buds. Wood-buds are always distinguished from flower-buds by their more slender and pointed appearance, while flower-buds are always known by their round plump look. The bud ought to remain dormant during the first autumn and winter, and push immediately into growth the following season. In the course of a few weeks the operator may

know whether or not the bud will fail if he attends to what has already been said upon this point—viz., when making the bud, allow a small portion of the leaf and foot-stalk to remain thereupon ; and should this drop off in the course of a few weeks, success is sure to crown the operation, whereas, if it dries up and adheres, it is a sure token that it will not take. Whatever sort of material is used for tying up the bud will, in the course of a few weeks, begin to get tight and leave marks upon the wood. Care should be taken to remove and renew these ties from time to time, as, if they are allowed to remain for a length of time, they are sure to cause gum or canker. The best material for this purpose is stocking worsted, which is at once strong and elastic. We have often wondered how little belts of india-rubber would answer the purpose. We never have met with any one who has tried it, but it is our intention to make some experiments with it ; and whether or not it answers the end in view, we will let the result be known. In spring, when the bud shows signs of starting into growth, the ties may be removed at once, unless there should be token of not very firmly adhering. In that case they may be allowed to remain for some time longer, but should be looked to every week and retied, as, if this is not regularly done, they will soon cut into the wood, as both stock and bud will be swelling rapidly, and in the course of a few weeks will probably double their circumference unless the stock be all the larger. Should the ties be allowed to remain, and the tree growing so rapidly, it will at once be seen that a very unsightly mark would thus be made, which would materially reduce the resisting powers of the tree, and make it very susceptible to being broken over at this point by any storm.

JAMES M'MILLAN.

(To be continued.)



HINTS FOR AMATEURS.—NOVEMBER.

Now that winter is fast approaching, much of what is termed the “rough” work of the garden should be carried forward without delay. It is too often the case with amateur gardeners to be in a miserable plight at this season—all the falling leaves, decaying vegetable refuse, and litter lying about, and much left to the turn of the year which has to be hurried through and often half done. This applies not only to renovation, but also to the usual course of work—such as trenching, draining, manuring, &c. While weather is open, no time should be lost in preparing for the coming season. After all refuse is cleared off to the compost-heap, let a good coating of manure be wheeled on in ridges,

and a trench taken out 2 or 3 spades deep and about 3 feet wide for the first (as more is required to fill in at the finishing than $2\frac{1}{2}$ feet of a trench would give, which is the usual width). If the bottom is heavy clay, and the top part of a light nature, a little of the subsoil brought up would improve the soil, or light brought up to heavy clay land would improve it; but this must be done with caution, as we have seen crops ruined for a season by turning up much of a poor subsoil. The great object is to have deep soil which will hold its own against a wet or dry season. Turning the bottom spade over roughly, and placing a thick layer of half-decayed manure over it, is a good preparation; but thoroughly-decomposed manure may only be placed under the top spade: a rough-ridged surface will break over freely in February and March, which makes a fine preparation for seeds at that time. Good healthy loam added to old garden ground is often much better than the usual coatings of manure.

Pease and Beans may be sown on a sheltered border about the middle of the month. If sown on the surface in rows rather more thickly than usual, and the earth drawn over them, there will be a good chance of an early crop, if mice and rats can be kept at bay: chopped furze placed over them often does well; red-lead among the seed is not relished by vermin. But those who have means to raise their early Pease under glass in boxes, tiles, turfs, &c., and plant them out in March, well hardened and sturdy, seldom sow in November. Sangster's No. 1 and First Crop are still favourites for early work. Early Longpod and Mazagan Beans may also be sown now in rows, if wanted early, 2 to 3 feet apart, and an inch or two from seed to seed. They can be thinned out if they require it when through the ground. Allowance should always be made at this season for losses. Pease in bearing should now be protected from frost. They are now valuable and scarce; Veitch's Perfection and M'Lean's Premier are yielding fair with us at present. The latter were topped back with common garden-shears, watered and mulched with short grass, but are now loaded with flowers and green pods. It is becoming difficult to gather one dish daily, as the exposure to wind and rain is of the worst description. These are two of the finest-flavoured Pease we ever tried. Many new ones have been tried here this season; some have supplied fine crops of large well-filled pods of wretched quality. It appears from what we have read in one or two contemporaries, that soil and locality seem to entirely change the character of some kinds of Peas. Celery should now be well earthed up. The soil placed round the stems to keep them compact, and the earth out of the hearts, are the principal parts of the operation; dustings of lime will keep slugs in check. A quantity of Horse-radish, Jerusalem Artichoke, and other

hardy roots, should be lifted to keep up a supply if the ground should become frozen. Brussels Sprouts are now ready for use. Some take the tops first, with the idea that the Sprouts will swell out better, others leave the tops for protection : however, we have failed to observe much difference either way. Keeping them clear of dead and decaying leaves is of importance. It is now late to sow small Salads outside, but in boxes or earthen pans small quantities may be sown, and can be raised in the window of a dwelling-house, or anywhere that a growing temperature can be allowed. Golden and American Cress, with us, often give a supply the whole winter through, when well established at the base of a wall. Lettuce, late Cauliflower, Broccolis, or any other vegetables liable to be destroyed by frost, should be taken under cover in time, in a cool dry earth-pit ; they will keep good for weeks. Lettuce and Cauliflower (for next season's supply), growing in frame, &c., should be kept dry, and the surface soil free and healthy. We have seen successful market-growers have the soil for these and Salads in frames so free, that they could blow it with their breath—almost entirely withholding water till active growth commenced, then there was no stint in supplying it. Globe Artichokes should have the soil thrown up to the collars of the plants, sloping so that rains would be carried off. Dry litter is often used, but if not placed compact, and so as to throw off wet, it does more damage than full exposure to all weathers. Parsley under protection should have plenty of air, only using the covers when weather is severe. Grubs have kept down Parsley crops with us this season, but a few bundles of thinnings from friends will keep us well supplied. These thinnings were planted thickly in an earth-pit, and are now growing freely, and will be kept as a reserve. It is unpleasant, as well as injurious to the crop, to sweep off frozen snow to find a picking. Let Beet, Carrots, and any other roots in store, be looked to, as some may be rotting or heating.

Box edgings may be formed or repaired. The latter operation is very unsatisfactory. For the fresh box, let the edge be dug over, breaking the soil well, picking out any stones that might be in the way of the spade ; thoroughly tread and beat down the soil to the proper level, and cut out a notch close along a mark made with the garden-line ; and after the box is reduced and neatly trimmed, it should be placed in the cut made for it, placing the soil to the roots, while the plants are kept in their place with the back of the left hand, leaving the tops an inch or so above the soil ; level in and tread the soil firmly, replace and level the gravel, and the operation is finished. Gravelling and turning walks may be done at any time in the winter months, making them firm by treading, levelling, and rolling. Salt stops the work of worms ; care must be exercised

afterwards for a time, till the salt dissolves, as if carried on to lawns with the feet, dark patches would soon be seen on the grass.

Planting of fruit-trees should be finished as soon as possible. Though we have often planted from October up till April, it was more from necessity than choice. In frosty weather there should be no planting done. Concrete should be used for a bottom, which will save trouble, and induce early fruitfulness, as when the roots run down on the hard bottom they turn outwards, and establish themselves in the healthy soil, where they can be easily got at, and cut if necessary to keep down rank growth. We have often made useful concrete with equal parts of coal-ashes and gravel, with a small portion of lime mixed well, using enough water to make it like mortar : a few inches spread over the space below where the trees were to be planted, and well beaten down, and allowed to dry, soon becomes like stone. Care should be taken, when placing the concrete, to let it come up the base of the wall a little, as the roots often find their way down between the wall and concrete. We examined some Apricot roots lately, which had found their way down close to the wall : they were cut clean off ; the concrete was as hard as rock. When planting trees on walls where there are different aspects, proper arrangements should be made to keep the kinds by themselves ; for example, Peaches and Apricots should have the south aspect, Plums face to east, and Pears the west ; Morello Cherries and Currant (red and white), to be kept late, may face the north ; early Cherries and Pears are often placed on a south wall. There is an advantage in having kinds of fruits by themselves, if only for netting, or otherwise protecting them from frost and birds. Lifting of trees which are growing too strong, or where they are cankered and subject to red-spider, may be finished as soon as possible. When fruit cracks and falls off before it is ripe, there will generally be a cause found for it at the roots. They will be either perishing in unhealthy clay, or starving in miserable sand or gravel. The roots should be carefully cleared from the soil with a fork, and unhealthy ones cut off, or strong coarse growers reduced, and the whole replanted in healthy clean loam, keeping them flat and regular over the surface, placing 6 or 8 inches of the healthy loam over the roots, finishing with a mulching of littery dung to keep out frost and drought. When we see trees of any kind liable to the attacks of red-spider, we suspect the feeders, more or less, have found their way into sandy or otherwise unsuitable soil. As examples we give the following :—In a long peach-house, where about 20 peach-trees were planted, we could not keep the trees free from red-spider by any amount of syringing or watering. The fruit fell off prematurely. We lifted the whole of them in October, and found an excellent border of healthy loam, in

which the fibres were matted ; but the principal feeders were far down into the bottom, which was only poor sand, which could not keep fruit-trees in existence. A firm bottom of loam and stones has kept the roots in their place, and the trees every year bear heavy crops of fine fruit. We examined a large old tree last season, which always carried fine crops of fruit, but was difficult to keep free from red-spider. Though the border inside the house was matted with roots, the spider would come when the structure was kept drenched with moisture. We found that a number of large roots had found their way under the concrete of a vine-border. We cut them clean off, and applied a good dressing of cow-dung over the remaining roots, and a fine crop of fruit has been picked, and the tree is in finer condition than ever we saw it, no spider having appeared. A house of Vines we once examined at the roots, which had been planted in a carefully-formed border of excellent loam, bones, &c. ; but the drainage rested on sandy gravel, in which the roots found their way, and ran many feet downwards. Red-spider, in the autumn, always appeared in great force ; no prevention had any effect on it, while a house of Vines adjoining growing in similar loam resting on concrete never showed spider at all, even though the weather was ever so dry or fine, heat ever so strongly applied. The upper stratum of roots often keeps the trees well supplied for a time, and while the supply is to be had from those lower down, red-spider, and badly coloured or cracked fruit are the result. Quantities of good Pears are now had from standard trees here ; until they were lifted from the miserable subsoil, small, gritty, and cracked fruit was all that was produced. Pruning of trees and bushes may be proceeded with as soon as the leaves are all off. Apples, if in bush form, may be pruned to spurs left on upright rods, cutting out all crop shoots, keeping the hearts open, allowing young shoots to take the place of old ones wearing out. Trees, to keep them healthy and vigorous, should have a portion of old wood cut out yearly, and enough young growth left to take the place of the old. This rule should apply to all fruit-trees. Continued spurring-in brings on stunting and premature decay. Currants, red and white, may be treated like Apples. Black Currants do best by thinning out a portion of young and old wood, keeping the bush healthy and vigorous with upright clean wood. Gooseberries require to be severely thinned, cutting out crossing branches, spurring-in to the main stems, leaving a supply of young wood, and removing old crooked branches. Little topping of the wood is necessary, if upright sturdy leaders can be secured. Save prunings true to name, to keep up a stock of fresh bushes ; put them in by the lower ends, to keep them fresh till the cuttings can be made. Apple and Pear shoots may be kept for grafts. Wall-trees should be pruned in open weather, leaving Peaches, Nectar-

ines, and Apricots till February or March. Pears should be spurred in closely, leaving the side spurs close to the wall ; old spurs may be thinned out if they are too thick. The centres of young trees may be cut back if a supply of wood is scanty, but for no other reason would we cut back young trees. Plums may be allowed to retain all natural spurs when they are well placed, but nothing should be allowed to grow straight out from the walls. Where proper attention was given during the growing season, there will be little to do with the knife now. Figs may be wrapped up with straw-bands for protection, or thatch placed against the walls will do well. Morello Cherries require a portion of last year's wood cut out, and enough fresh shoots left to keep the tree regular and balanced, but crowding is a great evil. These trees are often liable to canker and die off. Lifting them cannot be always safely done ; but if done piecemeal, the trees will stand it well and profit by it. Much cankering in trees is caused by late unripened growth and starting early in spring, when frost takes hold of the sappy wood. Well-ripened wood is perhaps the most important agent in securing free-bearing healthy trees. Nailing and tying in the shoots should be done on every mild occasion. Raspberry canes which have supplied fruit should be cut out, and the number of young canes reduced if necessary. Rows of them, tied to rails, 9 inches to a foot apart, will be thick enough for ordinary fruiting ; they may be topped to 4 or 5 feet high, or more if the rods are strong.

All kinds of shrubs may still be planted when weather is mild : let the pits for the roots be much wider than the roots of the plants ; supply plenty of fresh soil if necessary. No roots of other trees should be allowed to enter the fresh soil. If the tree or bush is large, ropes fastened to stakes may be required to keep the tree secure against wind. Fastening all round in the way tents are done will keep all secure, and allow the roots to take hold of the fresh soil. All occupants of flower borders and beds should be cleared off, if not already done. The empty spaces may be filled up, to give effect, at once, with such plants as *Stachys*, *Arabis*, *Ajuga*, &c. Such shrubs as variegated Hollies, *Aucubas*, Variegated Yews, and many others, can be used with fine effect. We often stick pieces of them into beds, to keep the earth covered through the winter. Where annuals are wanted for spring-flowering, shrubs can only be sparingly used. Variegated Kales have found only limited favour. Though I admired Miss Hope's arrangement at Wardie, I was not able to carry it out here. When snow fell, and was followed by wet or frost, both nose and eyes suffered. The scent and sight were anything but pleasant. Dahlias should be removed to dry quarters where no frost can reach them. Bulbs of all kinds should be planted without delay : rich fresh turfy loam and some sand in it is

necessary, to do them justice. Crocuses are a favourite morsel of rats, mice, and squirrels, and require looking after. Tar sprinkled over the beds helps to keep these vermin off: rows and patches of distinct-coloured bulbs have a fine effect. With Crocuses we sometimes have had rows of the following, admired: white, blue, yellow, and purple, in long lines, round a flower-garden. All plants, such as Pinks, Cloves, Picotees, Pansies, Auriculas, &c., under cover, require to be kept very dry. No damp or greenness should be allowed on the surface of pots. Frequent stirring will do all plants good at this season. Give water to moisten the balls of soil through, but not oftener than they require it. Plants requiring greenhouse temperature may be kept at 40° to 45° without sun. Crowding is very injurious to all kinds of plants; naked stems and decaying foliage are the result. All plants for forcing, however hardy, should be kept from frost. Rhododendron, Kalmias, Lilacs, Roses, hardy Azaleas, Deutzias, can be brought into flower (if well prepared previously) very easily with a little moist heat, and do well when in flower in a cool dry temperature. Roman Hyacinths and Lily of the Valley are among our earliest favourites. Slow forcing suits all hardy plants best. Chrysanthemums now require plenty of manure-water, fresh air, and plenty of light.

M. T.



CROPPING FRUIT-TREE BORDERS.

“CAST down, torn up, cut asunder, they are not destroyed. In the silence, in the darkness, exposed to freezing cold, benumbed with chilling water, they work bravely on to recover their misfortune, resolved to live, and not to die. But the warfare with our cruel culture is unequal. Once a-year, sometimes much oftener, we attack them with our spades. Hardly have they had time to gather up their energies and heal their wounds, than they are made to bleed afresh. And so the unequal contest continues, until at last the energies of the roots become paralysed, and their signals of distress are hoisted high on to the top of the tree.” Such, according to some who have assumed no little importance as horticultural teachers, are the lamentable and destructive effects of cropping our fruit-tree borders with vegetables. It is not very clear whether we are responsible for compelling the roots to work “in the silence” and “in the darkness,” or whether this also is a weak feature of our practice, but it is a condition of their existence which the writer evidently regards with deep commiseration. Putting this question aside, however, for the present, as altogether unintelligible and too dark for our apprehension, the

above picture is bad enough ; and unless it has been dictated by experience of a peculiarly barbarous description, we would be somewhat inclined to think that the author has been "a-pilin' the agony" rather *too* high. When we first perused his remarks, we were irresistibly disposed to exclaim with the Vermonter who, when the Yankee orator turned round after delivering a highly sensational harangue, observed "*Yew dew talk.*" Charitably supposing that the savages who annually *attack* their trees with their spades, and who tear and cut asunder, are chiefly confined to the neighbourhood of Bedlam and other mad centres, or, what would be better, that they are a creation of the brain, we will proceed to discuss the subject in the language of the craft, looking, as we go along, at both sides of the question as they have been presented by different writers during the last twelve months. And in order that we may do so in a true spirit of humility, allow me, in the first place, to draw the attention of your readers to the following estimates of their intelligence on the great question of "roots," as entertained by the author of the above sensational paragraph; which, in fact, necessitated the assumption that "root-culture is the weak feature of our practice ;" and he proceeds : "In fact, it is not too much to say that as a science it is all but ignored. The ideas of the best cultivators are, upon this head, of the most elementary description. With many they reach no farther than that the roots belong to the earth, and that they must be covered over. Others go a step beyond this, and add that they must be kept near the surface, and be furnished with suitable food and drink." So much for the pre-Adamite notions of the "best cultivators." What the ideas of the others must be, I leave your readers to guess. This we have learned at least, that they do not delight in the silence and the darkness. But only upon certain wise men in the East has dawned the knowledge that is destined to revolutionise fruit-tree culture, and there it shines with refulgent brightness. What a Utopia for fruit-trees ! where not only is all the light of reason brought to bear upon their welfare, but where their misfortunes are even regarded with feelings of the deepest sympathy and concern.

Now, Mr Editor, to those who, like your correspondent, have to vegetate in an ungenial climate, and who are nevertheless expected to hurry in all sorts of early vegetables with the first blink of the summer's sun, and mayhap to put in a regular appearance at Belgrave or Grosvenor Square from the beginning of May, the giving up of their early borders, with no prospect of an equivalent, requires serious consideration. I have no doubt that the non-cropping system would succeed as far as the fruit-trees are concerned ; but would the extra crops of fruit be equal to the sacrifice we are called upon to make ? Or, on the other hand, if it can be proved that healthy trees can be grown

and fair crops of fruit obtained, and the value of the space increased two-fold or more, by taking early and late crops of vegetables off the borders, would we be warranted in discontinuing the practice? That's the question: and herein, as Thomas Carlyle would say, lieth the true kernel of the matter. Once prove the fact that the cropping system is injurious, and then a little eloquence might perhaps be beneficially expended by those who are brimful of that commodity; but mere sanguine enthusiasm, unsupported by practical testimony, is utterly worthless, and only calculated to mislead. If it was only a question of Pears, Plums, and Peaches, it would be different; but gardening generally has to be studied pretty much in the aggregate. There are few establishments where early Pease, Potatoes, Cauliflowers, &c., are not prized as much as Peaches or Pears are in autumn; and so the gardener has to work on the compromising system, and eke out, as it were, at both ends.

That the condition of the fruit-trees in many gardens is bad enough, I admit, but it would be pure assumption to attribute failure generally to cropping the borders. In nine cases out of ten it is a question of labour. Sterility and failure of crops are much oftener due to over-luxuriance, caused through want of the necessary attention to root-pruning, than to damage done by the spade, which, when borders are dug regularly, is not appreciable. Wall-trees in our comparatively sunless climate are always more disposed to expend their energies in the growth of wood than in fruit; and as they are annually denuded of their season's growth, they will, unless checked at the root also, continue to produce only a thicket of spray, or, when the roots get down into a bad subsoil, perish of canker or some other disease. These are by far the most common faults of root-culture, and they are faults which the non-cropping system would not remove; but it would be wrong to attribute their existence in every case to ignorance. Had we time to attend as systematically to the roots as to the pruning and training of the branches, good crops of fruit—putting accidents of weather, &c., aside—might be calculated upon to a certainty; but it is seldom, indeed, that the gardener has the means of accomplishing all that he knows to be necessary in this respect.

But let us look more particularly at the objections themselves which have been raised by different writers to cropping the borders, and see what real weight is attached to them. There are only two of importance. The first is, that the roots of the fruit-trees are mutilated by the spade in digging the border; and the second, that they suffer injuriously from cold in winter, and heat and drought in summer. The first objection may be disposed of by saying that, when digging is done regularly, the tearing and cutting asunder is a myth, as every experi-

enced gardener knows : in scores of instances, I never saw as many roots brought up with the spade as would fill a tobacco-box, in borders hundreds of feet in length. And as to the second objection, I would ask how could the roots suffer to any extent, either from cold or heat, a foot beneath the surface of a well-pulverised border, shaded by crops—the very conditions favourable to the retention of moisture in summer and heat in winter? True, the vegetables absorb a certain amount of moisture from the soil, but they make up for it by the shade they afford ; and the manure which is annually applied, by keeping the border open, acts to a great extent as a mulching. But even supposing the roots were subjected to extremes of heat and cold, they would soon acquire a certain degree of hardiness that would enable them to resist either within ordinary limits. We have constant experience of this, and it is a fact which I do not think is questioned. Surface-roots are always of a much harder constitution than those which penetrate deeply into the soil. We can readily believe that if a Strawberry plant, which had rooted deeply into the soil, was lifted, put in a pot, and exposed to severe frost, it would die, or at least be greatly injured ; but such would not be the case with a plant that had been *grown* in a pot, because the roots would be hardened by exposure. By many, frost is supposed to be fatally injurious to the roots of strawberries in pots ; but there is really no cause for apprehension on that point, provided the plants are kept dry and not thawed too rapidly. I have seen pot-plants exposed for a long period to from 12° to 15° of frost—until the balls of the plants were raised about an inch above the rim of the pots—and afterwards bear an excellent crop of fruit, the roots not appearing to be at all affected. Indeed, it has yet to be proved that the roots of fruit-trees—such as pyramids—when regularly root-pruned, and encouraged to root near the surface, will not resist as much cold as the branches. I have certainly seen Pear-trees under these conditions bear excellent crops of fruit after a severe winter, during which the roots of the trees must have been a frozen mass for weeks at a time. During the severe winter of 1866-67 a lot of growing pyramids here, which had been lifted the winter previous, were in this plight, as many others must have been throughout the country ; yet those which escaped late frosts bore good crops—nor had the roots suffered any apparent damage. Facts such as these, which are no doubt common to the experience of most gardeners, warrant us, I think, in concluding that we have no reason to apprehend danger to the roots from frost that will not injure the branches or buds while in a dormant condition. Nevertheless, I would not advise any one to neglect mulching or other means of protection when they can afford it.

But to return to the border-cropping, and to add our testimony to that which has already been furnished by able and experienced gardeners in favour of continuing the system, we may state that we have an Apricot and a Plum wall here, the border of which, until about three years ago, had, as the writer I have quoted reverently puts it, been "sacred to roots"—having been planted with Roses, as the wall happens to face into the pleasure-grounds. Farther than receiving an annual top-dressing, the border, as far as I am aware, had not been disturbed for many years; and although the trees are pretty old, and do not appear to have been neglected in the training, their success never was such as would lead any one to think that the non-cropping system had any particular advantages. About three years ago, however, the Roses were lifted and the border was dug resolutely a spade-depth all over to within 4 feet of the stems of the trees, and since then it has been regularly planted with bedding-plants; and I can state confidently that down to this date the trees are at least no worse, but better—in so far as the growth has been more vigorous, and the crops better. The year before last the Apricots bore a moderate crop, and last year quite an extraordinary one—such as history, at least, does not credit them with before. The Plums, though healthy, have not borne so well, but want root-pruning. We have another inner south wall planted with Pears. Though old, and now somewhat lengthy in the spur, they are perhaps as fine specimens of horizontal training as could be found, generally in good health, and seldom failing to bear heavy crops of fruit; in fact, we rely upon them chiefly. Yet the border is, and has always been, cropped regularly once or twice a-year, and towards the front is sometimes dug a spade and a half deep, without injuring the roots in the least; and I should think they have had ample time to hoist their signals of distress if the practice disagreed with them. There is another wall of Jargonelles here, equally fine specimens of fair training, but in too rampant health, in spite of constantly cropped borders, as the subsoil under them is a deep strong clayey loam, which the roots persist in getting down into with a perseverance that "is well-nigh miraculous"—prompted, I suppose, by a sagacious instinct to escape the "barbarous mutilations" of our "ruthless spades."

We have no Peaches outside; but the outside half of the border of our early and late Peach-houses is cropped regularly without any apparent bad effects. We even carry the cropping on to our Vine borders. In one case—a late Hambro'-house, referred to by the "Squire's Gardener" in the January number of the 'Gardener'—where the roots are almost entirely outside, the border is cropped annually with early Potatoes and suchlike, and seemingly the annual manuring for the

vegetable crops has the best effects on the Vines also. The crops are always heavy and well finished. We have cut 3 and 4 lb. bunches *out of the house*, and prize Grapes not unfrequently. In digging the border, the roots of the Vines are never seen, but just beyond the reach of the spade they are to be found in quantity.

Instances like the above could, I have no doubt, be furnished by many of your readers. Economy has to be studied in gardening nowadays quite as much as in other things; and as the value of border-crops is often not far short of the value of the fruit from the walls and houses, I think most gardeners and proprietors will pause before adopting a system which has neither utility nor practical evidence to recommend it.

J. SIMPSON, Wortley.



TRAVELLING NOTES ON GARDENS IN THE MIDLAND COUNTIES.

(Continued from page 350.)

LEAVING the kitchen-garden we now pass on to the pleasure-ground, once somewhat limited, but recent additions have very much increased its extent. Unrestricted criticism would in this case be an unjust interference, as no one can with any degree of certainty predict the effect while there is little more to guide us than bare forms. This much, however, can be said with truth, that there is every appearance of Mr Cox having caught the requirements of the ground; that what he has done, and is doing, are, I believe, best suited to give character to the place, which is by diversity of application.

Mr Cox has a flat surface to deal with—there is not a rising line to relieve the eye. The god of monotony holds supreme power. True, there is one redeeming feature,—the Malvern Hills rising in the distance, which are objects of great beauty throughout the surrounding country—seen at a distance of more than forty miles. But there is no middle distance, the want of which dwarfs extension and everywhere begets an idea of restriction, but withal when finished will have a pleasing effect. One of the principal features will eventually be an avenue 400 yards long of *Picea nobilis*, planted 20 feet apart; and should the trees grow equally, it will be worth the labour of trudging many miles to see. But unfortunately the habit of this *Conifera* is somewhat uncertain; even seedling plants form no exception. We often see it planted in groups, each individual equally vigorous when young; but, from some cause not easily explained, a portion slacken their pace,

become stunted, and will not move on, pertinaciously opposing every effort to push them onwards.

We now reached the mansion-house, a brick building, in some respects of an architectural mixture, unpretending in appearance, of considerable dimensions, having lately received considerable additions, and flanked by a moat on one side—things now nearly numbered with the past. The flower-garden has lately been remodelled and extended—a pretty geometric design—and very carefully planted, particular attention having been paid by Mr Cox in the arrangement and harmonising of the different shades of colour. Amongst Lord Beauchamp's extensive improvements, he has considerably provided excellent school accommodation for the poor; and more than that, has built a handsome and commodious church for the use of the parish.

Having still a journey of nine miles to traverse by road ere I could reach my resting-place for the night, necessity compelled me to part with my kind and indulgent friend, Mr Cox, who, with his amiable wife, had rendered my visit so very agreeable. I now started for Eastnor Castle, the residence of Earl Somers; and as my route lay through the town of Malvern, a passing notice may not materially interrupt the thread of my narrative.

Malvern cannot with propriety be called a town. The designation would be more truthful by describing it as an assemblage of detached villa residences bristling on the hill-side. I understand that it contains some first-class educational establishments; but its reputation rests not upon either classical or mathematical acquirements, but as a curative emporium for every shade of disease, whether imaginary or real—consequently Malvern represents every phase of the medical profession.

Ascending bit by bit, I had now reached the summit of an outlying spur of the Malvern Hills, which, like the entire group, is a kind of granite composed of quartz, felspar, and hornblende, or what geologists term "a syenitic formation." Standing on this jutting point, we have the extensive vale of Worcester lying at our feet, its cathedral tower and spires rising above every other object. Before proceeding further, let us think for a few minutes and contemplate the incessant movements of fixed and immutable laws that have taken place in this world of ours, and which are now as active as they have been through vast cycles of ages that are past—essentially the same as those now in progress. This vale, now teeming with human industry, once formed a gulf of the sea that separated England from Wales; and were it to subside, even to the depth of a hundred feet, the whole would again become submerged. There is no want of evidence that we have here an ancient sea-bottom, and that the temperature is now greatly reduced, arising from the fact that the fossil remains of the hippopotamus, the

rhinoceros, and marine animals which now only exist in warmer latitudes, have been found in the alluvial deposit. By directing the eye across to the opposite side of the vale, it catches the northern range of the Cotteswold Hills, formed of argillaceous limestone and marl. They, too, have been wholly or in part, at some unknown period, covered with water, attested by their physical outlines, consisting of boldly-marked promontories and deeply-receding bays; and we might extend the evidences by saying that this formation is found to be embedded with marine shells, and is also the last resting-place of the ammonite, the belemnite, with a great variety of other fossil forms. Here have also been discovered the remains of that marvellous creature, the lizard fish, or ichthyosaurus, possibly the most savage reptile that ever existed, possessing a very peculiar combination of structure. Any description of mine would very inadequately represent so complex a form, still I cannot help noticing some of its most prominent characters. For instance, it possessed the teeth of the crocodile, the snout of the porpoise, the head of a lizard, the paddle of a whale, and the vertebræ of a fish. Not less curious in form is the plesiosaurus, found in the same locality, uniting various types of organisation peculiar to the former, but with this difference, that the neck is very much longer, while the back and tail have the properties of a quadruped; so, in some respects, it may be said that these two reptiles form an intermediate link between fishes and mammals. Whoever feels an interest in these curious creatures, and desires to become acquainted with their external form, cannot do better than consult the figures given by Waterhouse, as they faithfully represent the exact conformation.

Posterior to this era the scene completely changed—the sea was driven back by some mysterious agency, probably by an upheaval in one part and a depression in another, which gave possession of the dry surface to the hyena, the elephant, and other wild animals, whose remains have been discovered in this locality.

Possibly there is nothing that yields more real pleasure than to possess a knowledge of the flora of the district, the eventful changes that the earth's crust has undergone, and its extinct organisms, in the country through which we pass during our pedestrian journeys. Night had now nearly enclosed creation by her sable mantle; so ruminating over the preceding details, somewhat chilly and rather wet, I pushed onwards to Eastnor Castle, and so soon as I got under the hospitable roof of Mr Coleman, his amiable and kind-hearted wife ministered to my necessities, which made me easily forget the toil and anxiety of the past day.

ALEXANDER CRAMB.

TORTWORTH COURT.

(To be continued.)

NEW PLANTS OF THE PAST MONTH.

THE approach of autumn is beginning to thin the number of new plants that put in their claim for recognition at the hands of the Floral Committee, though it is by no means an invariable rule, that when new plants are thinly produced they are necessarily inferior in quality. The meeting of the Floral Committee on the 21st of September brought together fewer things than usual, but there were some good things produced nevertheless. First-class certificates were awarded as follows : To *Hydrangea paniculata grandiflora*, a hardy Japanese species introduced some time ago, and bearing a spike of white flowers changing with age to pale primrose : from Messrs T. Cripps & Son, Tunbridge Wells. To *Veronica blue gem*, a very dwarf and compact form of the type of *V. Andersoni*, with a multitude of rich blue flowers. This plant, it is said, came up as a chance seedling, and judging from its appearance as seen on this occasion, appears likely to make an invaluable decorative plant for houses, and in all probability will prove well adapted for bedding purposes : from Mr H. W. Warren, Nurseryman, Salisbury. To *Centaurea hybrida*, a seedling from *C. ragusina*, but quite distinct in character, having a fine large and bold silvery foliage : from Mr John Salter, Versailles Nursery, Hammersmith. To Mr Green, gardener to W. Wilson Saunders, Esq., for *Agave pectinata*, a curious Mexican species, with dark-green fleshy leaves beset with large whitish spines on the margin ; and to *Cupressus albo-spica*, a fine silvery-foliaged plant, which was regarded as a variegated form of *Thujopsis borealis* by some, and by others to be a variety of *Cupressus Lawsoniana*. It had a handsome elegant habit, and it is said to preserve its character in all seasons : from Messrs J. & C. Lee, Royal Vineyard Nurseries, Hammersmith.

Quite a sensational plant was a very fine seedling *Viola*, shown under the name of *Perfection*, by Mr J. Jobson, Rothersfield Park Gardens, Alton, and said to be a seedling from *V. cornuta*. It is nearly thrice the size of this well-known variety, and of a deep purple blue hue, and wonderfully profuse and continuous in bloom. It will be sent out next spring by Mr B. S. Williams of Holloway, and was on this occasion awarded a first-class certificate. The same award was made to Mr J. W. Wimsett, of Chelsea, for Ivy-leaved *Pelargonium Willsii*, one of Mr Wills' new hybrids, and producing numbers of trusses of bright violet-rose flowers of the fine shape of the ordinary zonal kinds. This was the result of a true effort at hybridisation, and cost Mr Wills something like twelve years of patient labour.

At a later meeting of the Committee, Mr Bull contributed a collection of handsome forms of Palms, to most of which first-class certificates

were awarded, not so much on account of their novelty, as of their beauty, and because of the great repute in which these handsome plants are so deservedly held. The following were the names of the kinds so honoured: *Dekenia nobilis*, a *Seaforthia*-like species, with whitish spines round the stem and up the leaf-stalk; *Ptychosperma elegans*, *Plectocomia elongata*, *Ptychosperma Alexandræ*, *Chamærops arborea*, by some thought to be identical with *C. humilis*; *Thrinax havanensis*, and *Martinezia caryolæfolia*. Messrs Veitch & Sons received first-class certificates for two beautiful forms of *Anæchtochili* named *Ordiana* and *Dawsonianus pictus*; the former having deep velvety emerald-green leaves, with white reticulations; the latter a form of *Dawsonianus*, but brighter, and more reticulated; also for *Tydea Nero*, deep scarlet, with deep dark markings, a fine garden Hybrid; to *Miltonia Warscewiczii*, a new Grenadan species, with rather small flowers, the petals of which are of a bronze colour, tipped with green, and with a warm slate-coloured lip, deeply bordered with white, said to have been purchased very cheaply when new, and now a small bit of it is worth ten guineas. To *Seaforthia Veitchii*, a fine new Australian species, forming a handsome greenhouse Palm, not so robust in growth as *Elegans*; and to *Rhododendron Lobbi*, a stove flowering shrub from the East Indies, with crimson curved tubular flowers. Messrs Paul & Son, Cheshunt, received a first-class certificate for *Cupressus Lawsoniana pendula alba*, a beautiful silvery-foliage form, with a graceful pendulous habit. The same award was made to Mr C. Turner, Slough, for a capital variegated Ivy leaved *Pelargonium*, named *Compactum*, the leaves broadly edged with white; and for *Tropæolum ochroleucum*, a variety with a soft yellow foliage, quite constant, and a most effective bedding plant, and an almost flowerless variety.

The following Dahlias have also received first-class certificates:—*Royalty* (Rawlings), bright golden ground, the centre and some of the florets slightly tipped with brown, of perfect shape and fine substance; and *Provost* (Turner), an orange-red flower, the base of the florets paler, distinct in character, and of good substance. Second-class certificates were awarded to the following:—*Alice Gair* (Turner), blush, heavily tipped and dashed with bright rosy purple; and *Lord Weymouth* (Wheeler), buff golden ground, heavily tipped with lake.

At the meeting of October 5th, a most conspicuous figure was a splendidly grown and bloomed plant of *Amaryllis* (*Hippeastrum*) *reticulatum*, from Mr Cliffe, gardener to Lord Egerton, Tatton Park, Cheshire. It had six splendid trusses of deep pink flowers, and was in all probability one of the finest forms of it ever seen. It was awarded a special certificate on the ground of its superior culture. Messrs Standish & Co., Ascot, also exhibited some plants of *Ficus macrophylla*, a very free-

growing species ; the leaves are broader, of a thinner texture, and of a lighter green colour than *Ficus elastica*, surpassing this species both as being hardier and a faster grower, and will no doubt be a valuable acquisition for subtropical gardening.

R. D.



TROPÆOLUM SPECIOSUM.

MUCH has of late been said about this lovely climber ; and, in my opinion, nothing in its favour has been said that it does not richly deserve. As the result of this season's experiments differs most materially from my former opinion and experience regarding it, and likewise from that of some of your correspondents, perhaps you will grant me a corner in your magazine that I may detail the mode of treatment that in my opinion brought about that result.

The lady whom I have the honour to serve was loud in praise of *Tropæolum speciosum*, and was most anxious to have a certain wall covered with it in real profusion that in the mean time was covered with other creepers, all of which she was willing to sacrifice for the "favourite" in question. About the 10th of June of this year (just three months ago), I was consulted about the propriety of at once removing the old occupants to make room for *T. speciosum*. As I was of opinion it would do little or no good before the third year, and likewise as I wished to keep on the safe side, I gave it as my opinion that the season was now too far advanced for doing it, but that if she could make up her mind to have the wall comparatively blank for two seasons, I would at once set about with the best of my ability to bring about the desired effect. I was at once authorised to proceed, which I did early the following morning, and began my operations by rooting out the former possessors. The soil, however, was extremely poor ; and this evil seemed to increase as I considered I had no dung to enrich it with. Having no alternative, and as a last resource, I resorted to the piggery ; but here I was again, in my opinion, placed at a disadvantage, as all the dung there was raw and rough—so much so, that I found it impossible to dig it in in the usual way, but had to open out a trench, and, as it were, bury it in one solid mass, covering it over with a few inches of soil. All that now remained was the planting, and for this I had but sorry subjects, all of them being small, weakly, and wiry, none having grown more than 4 or 6 inches, and many of them being only bare roots. I might also mention that previously they were growing among a real confusion of other things—all growing wildly among each other—and consequently were somewhat injured in

lifting, none having the smallest particle of soil in the way of a ball. In planting, I merely covered them with 2 or 3 inches of soil, and gave a good thorough soaking of water about their roots, finishing in the soil about them and leaving them to their fate. The weather being very dry (as every gardener this year knows to his cost), I gave them another soaking about a fortnight after, and never gave them another drop. It being a south-easterly aspect, the direct rays of the sun did not reach them after mid-day, but I find all aspects almost alike dry this year. In a few weeks they gave symptoms of having penetrated into the dung, and of liking it. The result is, that to-day (September 10th) more than two-thirds of them are over 6 feet high, many of them are over 8 feet high, and some are even 9 feet 6 inches high, and still growing vigorously and flowering most profusely. They have, however, been a good while later in flowering than the others, but this can easily be accounted for, seeing they were so late in being operated upon.

J. F.



BEE-FARMING IN 1869.

IN many counties of England the honey harvest has been satisfactory this year. The yield has been greater than for some years previous. Last year, bees were remarkably loath to swarm—comparatively few swarms were obtained; whereas this year they swarmed freely, often before the hives were well filled. Last year they clustered about their doors for weeks and months without swarming; this year they sent off colonies without clustering or hesitation. No explanation can be given of these things; their reasons or causes are deeper than the ken of mortals.

Some of your readers will remember that my balance-sheet last autumn left me a profit of 24s. per hive or thereabouts, and in possession of twenty-eight stock hives. These we valued at 23s. each, or 7s. less than the tip-top price. The winter being mild, they kept their bees well; that is to say, they were in good condition in February of the present year. As my garden is too near the big city of Manchester for bees to gather much honey, I took twenty hives to cottage and market gardens three or four miles in the country. Of course I pay rent, and I am glad to do so, for there my bees have richer pasture; but the expense in taking them to and from these farms is considerable. My expenses will overtop those of most bee-keepers. This year my expenses are unusually heavy, amounting to more than 10s. per hive. Two of the hives in the country, I found in May, had queens which had never been mated, and were therefore useless. Thus my number was reduced to twenty-six. Of these two never swarmed;

the rest yielded thirty-three swarms, three of which were lost for want of hiving. After swarming, the queens of two hives were lost on their marriage tour, thus adding to the list of my misfortunes.

Owing to the prevalence of easterly winds, the season, as a whole, was not a favourable one for the accumulation of honey in this locality. These easterly winds either hinder the secretion of honey in flowers or dry it up. Still honey in moderate quantity was gathered, the roar of contentment was kept up, great quantities of brood were hatched, the bees were always prepared to do more work than the weather permitted. At the close of the season my best first swarms ranged in weight from 70 lb. to 80 lb. each, the second swarms from 30 lb. to 40 lb., and the stocks or parent hives from 50 lb. to 70 lb. each. These weights indicate considerable stores of honey and large profits. But when we commenced to take the honey—to supply an order for 500 lb.—we found much of it discoloured; and the discoloured honey was so mixed with the good and pure, that we could not take the one from the other without great loss. We did not hesitate about declining to supply the gentleman who ordered 500 lb., for we felt sure the honey would not please either him or his customers, but the difficulty was what to do with the heaviest hives. We resolved to offer them for sale at a price less than the value of honey in them. Hence we sold some, and kept far more for another year than we had intended to keep. There are forty-two hives kept as stock for another year. Many of them are large and good, with ample stores of honey; but owing to the misfortune of having to sell some of the bees with their honey, they have not received swarms and half swarms in the usual way practised here. Still I value them at 23s. each. If I had had an extra swarm to put into each, they would have been worth 30s. each, and second to none.

How did the honey become discoloured? The Sycamore, Lime, and Oak trees in this neighbourhood were covered with a glittering substance (produced by insects), which ignorant people call honeydew. When flowers are scarce, bees work on these shining leaves, and in this way honey becomes damaged. Two years ago much English honey was dark and unsalable.

<i>Expenses.</i>		<i>Income.</i>	
New hives, boards, and honey-		Hives sold, . . .	£12 8 0
glasses,	£4 0 0	Honey and honeycomb, . .	15 0 0
Feeding,	1 4 0	Increase of stock, . . .	16 10 0
Rent,	4 0 0		
Carriage,	4 0 0	Total, . . .	£43 18 0
		Deduct expenses, . . .	13 4 0
	£13 4 0	Profit, . . .	£30 14 0

When writing the above a note came from my friends at Carluke, in Lanarkshire, where bee-keeping is a source of great profit. The writer says:—

CARLUKE, *October 5, 1869.*

MY DEAR OLD FRIEND,—I beg to be excused for not replying to your note sooner, but I waited till I got my bees home from the moors and the honey taken from them. I jarred it all up yesterday, and find that out of ten hives we have taken upwards of 400 lb. The heaviest hive we had weighed $120\frac{1}{2}$ lb., two or three of them about 90 lb., the rest from 60 lb. to 70 lb. We had three boxes of honeycomb also, which realised 27s. The above is the produce of six stales or stock hives. So you see the bees have done well with us this season. One hive, 80 lb. weight, was sold for £2, 5s.—Yours truly,—R. R.

These figures indicate £22 income from six hives ; the expenses are not stated.

A. PETTIGREW.

BRIGHTON GROVE, MANCHESTER.



GARDENERS' EXAMINATIONS.

EXAMINATIONS for gardeners have been held for some years by the Royal Horticultural Society of London, who hold two examinations annually, and also by the Society of Arts, who hold but one examination each year.

Any information respecting these examinations may be obtained by addressing a letter to “J. Richards, Esq., Assistant Secretary, Royal Horticultural Society, South Kensington, W.,” and to the “Secretary of the Society of Arts, John Street, Adelphi, London.”

As to the examinations for certificates, they are conducted by means of printed questions, which the assembled candidates are required to answer in writing,—pens, paper, &c. being provided for the purpose. Three hours are allowed to answer each paper, which consists of from twelve to sixteen questions, of which the following, taken indiscriminately from the current year's papers, will suffice as examples:—

FRUIT AND VEGETABLE CULTURE.

“Describe the treatment required to form a Pyramidal Pear-tree from the graft till it is four years old.”

“How would you distinguish a Green-Gage Plum tree from a Blue Imperatrice by the young wood?”

“Write a short treatise on the cultivation of the Cauliflower.”

FLORICULTURE.

“Describe the process of Budding, and name the kinds of plants which are most readily propagated thereby.”

“Describe in detail the treatment of Mignonette in pots for early spring flowering.”

“Give some account of the theory of ventilating houses for stove plants, and explain the best practical appliances for securing proper ventilation.”

The preceding half-dozen questions will give intending candidates some idea of what is required of them. Above all, let the candidate acquire as much facility in writing and composition as possible. There is not much time to think when you are at the examination-tables, and this is where many candidates fail. They possess a good practical knowledge of horticulture, but lack the ability of lucid expression. Candidates must remember that the examiner has nothing to guide him in his awards but the answers, and the more clear and concise these are written, the greater is the chance of success. Only two things are requisite in order to pass the most severe examination—viz., a thorough knowledge of the subject, and a clear style of expressing your ideas.

Examinations are good, inasmuch as they are emulating; but at the same time it is impossible to prevent a large amount of “cramming” or “grinding” being practised by the candidates. For example, it is well known that the distinctive characters of fruits form a leading feature in one paper. Let us take Peaches or Nectarines by way of illustration. The old candidate knows very well that it is sheer waste of time to learn their characters by actual observation and careful comparison when he can take the ‘Fruit Manual’ and learn them off by heart, flowers and glands, clingstones and freestones, in a few hours, so as to face the most severe examiner. The other fruits are “worked up” on the same system. Many a really good practical head-gardener would fail to obtain a first-class certificate at these competitions, while his right-hand neighbour, perhaps a beardless boy, with any quantity of cut-and-dried information from books, obtains a first-class certificate with ease.

If a candidate gains a certificate of the highest class, it does not follow as a rule that he is a first-class gardener; this is a fact that one cannot deny, for the simple reason that it is a fact. I look upon a certificate as a bubble; it looks well, but the moment you grasp it, you find that after all it is useless. If you have added to your store of knowledge by studying in order to obtain it, what you have learned in that way is the true grain; the rest is chaff.

By way of a check upon those who carry out the above-mentioned system of grinding, could we not have “practical examinations” conducted under the surveillance of a committee of “practical gardeners,” whose names should be appended to the candidate’s certificate? The

candidates might be set to dig a small plot of ground, to prune a fruit-tree, or plant a few feet of box edging, &c. A practical gardener would see in a moment who were, and who were not, acquainted with practice as well as theory. Suppose three hours be allowed for practical operations, and three hours for theory (as in the present examinations), for each subject, the examinations would occupy more time, and cause a little extra trouble, but would not the result be better, and a certificate more valuable than one obtained under the present system? Gardeners as a rule laugh at the certificate already obtained by aspiring candidates. Would, or rather could, they do so if the certificates had such names as D. T. Fish, D. & W. Thomson, W. Earley, E. Sage, J. Wills, or Barnes (Bicton), appended to them, and accompanied by a statement that they were awarded for practical skill as well as theoretical talent? Who would have presumption sufficient to gainsay the combined opinions of such a committee as that above named, or one equal to it? That these competitions are not at present popular, may be inferred from the fact, that but few—very few, comparatively speaking—care to attend them. If examinations for gardeners are to be held, let them be held so that all concerned may reap at least some small amount of benefit from them. If seed is sown, we expect the produce, and that before many days, in these pushing times. By way of conclusion, I wish it to be understood that I speak as a candidate, and one, moreover, who has been successful in obtaining both certificates and prizes at these competitions, both as regards those held by the Society of Arts and the Royal Horticultural Society.

FRED. W. BURBIDGE.



CONCERNING SOME GOOD POTATOES.

At the meeting of the Fruit Committee of the Royal Horticultural Society, held at South Kensington on the 21st September last, a special first-class certificate was awarded to Mr Robert Fenn, the Rectory, Woodstock, Oxon, for a collection of twelve sorts of Potatoes, staged by him as the best in his latest experience of Potatoes. The samples were faultless, the tubers of good size, clean and smooth, and I thought it would be well to obtain from Mr Fenn full descriptive notes of these fine varieties for the guidance of Potato cultivators. In a communication accompanying these descriptive notes, he says: "I consider the varieties of Potatoes I exhibited at South Kensington as being the best twelve sorts for household and market purposes, and

as being suitable for garden or field culture, and fully up to the march of progress of the present day."

The following notes are descriptive of the sorts shown by Mr Robert Fenn on the occasion referred to:—

"*Hogg's Early Coldstream*.—A good household or market variety, A 1 for earliness in gaining firmness and flavour; suitable for framework, for garden, or for field culture if the ground is good.

"*Dickson's Premier*.—Without doubt the greatest *yielding* early Potato for market and general household consumption, and as an exhibition sort there is none to surpass it. This variety may be substituted for the market or the servants' hall with Myatt's Early Prolific; but the 'coming Potato' to place them both, as well as Rivers' Royal Ashleaf, *hors de combat*, is Veitch's Improved Ashleaf; excepting the Dickson's Premier only as for the exhibition table.

"*Rivers's Royal Ashleaf*.—The best of its class, to be easily and cheaply got at present, for early market and household use, coming in directly after Myatt's Prolific; A 1 for flavour, albeit yellowish in flesh; suitable for garden or field culture.

"*Early Emperor*, alias *Emperor Napoleon*.—A good second early round red sort for the market or the household; A 1 for flavour, though yellowish in its flesh; suitable for garden or field cultivation; for the latter preferably, providing the soil of the garden is a rich loam, as in this case the sort is apt to throw gross haulm, and the Potatoes to become diseased.

"*Daintree's Seedling* (round).—This is an improved early Regent, and scarcely to be distinguished from the Dalmahoy except by boiling, when Daintree's sort will be found to be ready for the table some eight minutes sooner than the Dalmahoy. First-rate both of them for market, household, or the parlour table, and suitable for garden or field culture.

"*Wheeler's Milky White*.—A good second early Potato, excellent for the parlour table on account of its good looks, and always appreciated by ladies, though for the masculine palate I complain of it, and I have frequently heard it complained of by gentlemen as lacking flavour. A good household variety, and suitable for garden cultivation.

"*Paterson's Scotch Blue*.—A very prolific, and a good white-fleshed blue-skinned variety; a second early for market and household use; garden or field culture, more especially for the garden.

"*Dean's Waterloo Kidney*.—A capital market, household, or parlour-table kind, suitable for either garden or field culture; a great yielder, and, I presume, a seedling from Wheeler's Milky White, which it much resembles in its flesh. Mr Daintree has a new seedling resembling it in every respect, excepting that this new variety—Daintree's

'Bakers' Dozen' — cracks its skin a little more during its progress of arriving at maturity. I have written 'Bakers' Dozen,' because, when Mr Daintree (Fendrayton, near St Ives, Hunts) sent the sort for me to try, two years ago, he said 'he had a great opinion of it,' and requested me to give it a 'crisp name.' There were thirteen tubers in the package, so I have named his variety the 'Bakers' Dozen'!

"*Cutbush's Forwards*.—A capital prolific market or household Potato, and suitable for garden or field culture. It comes a little too pyriform in shape to please me, although the sample that Mr Cutbush presented to me was a white blunt-nosed kidney of the handsomest type. There can be no mistake about its capability of 'fetching down the scales,' in the heaviest sense of the words, 'per acre.'

"*Almond's Yorkshire Hero*.—A prolific and excellent late-keeping Potato, suitable for either garden or field culture, and at the 'top stave of the ladder' for flavour, and as being suitable for either the market, household, or the parlour table; albeit a little too dry in its eating to please the extreme palates of a few. It is the best strain of the Lapstone Kidney family, and it is of the hybrid class raised by Mr Thomas Almond by the modern method of grafting the eye of one tuber into the tuber of another. If this variety cannot be got, substitute for it Haigh's original Cobbler's Lapstone, which, I doubt, will be found even more difficult to procure. The family are as prolific as rabbits, and when chosen by natural selection, which has been much resorted to, the younger branches are mostly of a quality sufficient to be thought worthy of keeping, hence there are innumerable varieties of it, but only one that I know of to excel the old original, and that is the Yorkshire Hero.

"*Gryffe Castle Regent*, the 'King of the class Regents.'—This excellent variety was raised in Renfrewshire, and sent to me by a 'Brother Bee-Keeper,' amongst other famous north-country Potatoes, in a bar and frame Stewarton hive. I never knew my 'brother' by name or in the flesh, but I think the world has been told often enough how I have utilised the hive and all about the 'Praties,' but I do think the raiser of this excellent Potato has never advertised it up to its worth. I sent some to the Rev. W. F. Radclyffe, and both with him and myself it ranks highest in the class Regent. Walker's Second Early Regent and the old York Regent are the other sorts to be preferred in lieu of it. Field cultivation only.

"*New American Red* is also a Regent. It is a great cropper, and a stain of rose-colour predominates in blotches throughout its flesh when cooked; but it may lose this feature by about next February; and it is not fair, generally speaking, to cook any of the Regent class for

correct judgment till that period at any rate. This variety is a great cropper, and suitable for field cultivation only. This Potato will quite supersede the American Rose in our English climate and soil.

“There are two more Potatoes I could have hoped to figure in this list had not adverse fate ordained otherwise—one, Fenn’s Rushbrook seedling, a cross between the Early Frame and the white blossom Ashtop. Two of my Potato friends who stood by when I dug them up this spring—a peck of handsome tubers almost to each root—strongly advised me not to make away with the sort, but they proved of no advance on their parents as regards *flavour*, so I have destroyed every tuber, and I trust the ingenious person who helped himself to a tuber (*suus cuique mos*) from the plate on which I exhibited it at Bury St Edmunds in 1867 will not perpetuate the breed. Fenn’s Onwards, alas! this year has gone backwards. I cannot make it out. For the last five years it has been with me a good Potato in every respect; a great advance on its parents, the Jackson’s seedling Kidney and the old Fluke. I must give this chield another year’s trial, however, as it does seem hard, after seven years’ selection and care, to have to part with ‘all my pretty ones;’ not only so, but the thing repeated several times over! Well, I trust to my recent crosses to turn out something better, even though I maintain some of the same blood, either on the male or female line, because I feel convinced I am right in thus laying a foundation for something good and permanent in the future.

“I remember, in a letter he wrote to me years ago, poor Donald Beaton expressing that it was ‘easier to raise Pine-Apples than Potatoes;’ and he once wrote the same observation publicly in the ‘Cottage Gardener.’ ‘Only a Potato!’ is a common expression; but if people, instead of considering the esculent as a mere matter of course from its very commonness, could at the same time be brought to consider its national importance, and to know but a tithe of the enterprise required to raise a new and superior variety, they would hold the *escult*, and perchance the *deluris*, in its improvement rather higher in the scale of estimation.

“I cannot conclude without a word respecting *Patterson’s Victoria*. Although no favourite of mine, on account of its tendency to subtub-erate, it is yet a good field Potato, and well suited for the market table or the servants’ hall. Like my Onwards, it will suit the north better than our southern counties.”

I feel under a deep obligation to Mr Fenn for these valuable notes, and hope they will prove acceptable to many of the readers of the ‘Gardener.’

R. D.

MESSRS VEITCH & SONS' NEW AND RARE PLANTS.

[Pressure on our space last month prevented our giving a list of the magnificent collection of new and rare plants exhibited at the International Show in Edinburgh by Messrs Veitch & Sons. We now give it.]

FOLIAGE PLANTS.

Croton Aucubæfolia.	Maranta tubispatha.
„ Hookeri.	Alocasia Sedenii.
„ maximum.	„ Chelsoni.
„ Seemannii.	Anthurium Scherzerianum.
„ tricolor.	Dionea muscipula.
„ Veitchii.	Sarracenia purpurea.
„ undulatum.	„ flava major.
„ Johannis.	Retinospora aurea nana.
Dracæna Chelsoni.	„ filicoides.
„ Guilfoylii.	„ filifera.
„ Macleayii.	Lapageria alba.
„ magnifica.	Sciadopitys verticillata.
„ Moorei.	Araucaria elegans.
„ Regina.	Amaranthus salicifolia.
Nepenthes Dominiana.	Tydea nero.
„ hybrida.	Goodyera Veitchii.
„ „ maculata.	Phormium tenax variegata.
„ Hookeri.	„ colensoi „
„ Rafflesiana.	Marattia Cooperi.
„ Sedenii.	Pandanus Veitchii.
Cephalotus follicularis.	Darlingtonia Californica.

PALMS.

Cocos Weddelliana.	Areca Verschaffeltii.
Areca Bauerii.	Stevensonsonia grandifolia.

FERNS.

Leptopteris superba.	Dicksonia arborea.
Davallia Moorei.	Trichomanes reniforme.
„ parvula.	„ Wilksiana.
„ hemipetera.	Acrostichum palmatum.
„ alpina.	Lycopodium phlegmari.
Adiantum concinnum latum.	„ taccifolium.
Actinopteris radiata.	

ORCHIDS.

Cattleya Devoniensis.	Cattleya Dowiana.
„ Dominii.	Cypripedium Harrissii.
„ Exoniensis.	Anæctochilus Dominii.
„ hybrida.	„ Dawsonii.
„ „ picta.	Miltonia Warszewiczii.
„ labiata.	Vanda insignis.
„ maxima.	Odontoglossum grande.
„ Manglesii.	



HORTICULTURE IN AMERICA.

WE this month make some lengthened extracts from the 'Prairie Farmer,' a well-conducted journal devoted to the advancement of agriculture and horticulture, to show the interest taken by our cousins in these pursuits, as well as for their intrinsic value.

AMERICAN POMOLOGICAL SOCIETY.

ADDRESS OF PRESIDENT WILDER.—IMPORTANCE OF A NATIONAL SOCIETY.

Most happy am I to meet on this occasion so many who have come up to co-operate with us in our efforts for improvement. Especially would I congratulate you on the reunion with our Southern brethren, whose absence, from whatever cause, we have greatly deplored. Again their voices respond to our call, again their hearts beat in unison with ours, and again their presence cheers and encourages us in our noble work. And here let me express the desire that our brother pomologists throughout the length and breadth of the South will give us the results of their experience; and let me repeat the hope expressed in my last address, that at no distant day our meeting may be held in the South, amidst the peculiar fruits of that region, so favoured in soil and climate.

How salutary the influence of such associations! who that has witnessed the operations of this society can for a moment doubt the usefulness and importance of these national gatherings? The great practical truth of the present generation, said Daniel Webster, is, that public improvements are brought about by voluntary combinations and associations. "The principle of association," said he, "the practice of bringing together men bent on the same general subject, uniting their physical and intellectual efforts to that purpose, is a great improvement in our age." So say we. If there were not an Apple, or Pear, or Grape on exhibition, the stimulation of thought produced by the contact of mind with mind, and the information acquired by the free interchange of experience, is far more valuable than the same amount of knowledge derived from books. It is this centralisation of action which has produced the wonderful progress of our age; but in a national society, which embraces the whole country for its domain, we have the additional motive of patriotism to bring us to our biennial meetings, where, by the exchange of cordial greetings and the influence of co-operative exertions, the representatives from the distant parts of our widely-extended country become kindly affiliated, and where, on the broad platform of common philanthropy, free from sectional prejudices and party animosities, we become, indirectly but not the less effectually, united in the bonds of friendship and reciprocal regard; and where, from the loving cause in which we are engaged, we have learned to love each other.

The importance and usefulness of a National Pomological Society is never questioned by those who from the beginning have laboured with us in the acquisition of valuable information. If there be any who doubt, we commend to such the brief summary of its work for the last nineteen years, given in my last biennial address. When we consider what has been accomplished, who can set bounds to the progress which may be attained during the remainder of this century? An entire revolution in the cultivation of fruits has taken place since the establishment of our society. Where trees and Vines were then purchased by the dozen or hundred, they are now sold by the thousand. Where the stock of nurserymen could be summed in thousands, it is now enumerated by millions of trees and Vines. Where the Grape was scarcely grown a few years since, now thousands of hill-sides, from the base to the summit, are clad with the verdure of the Vine, and the vintage of the golden western slope promises ere long to rival in value the riches of its mines. Where fruits were considered as only a luxury for the opulent, they have now become not only a sanitary condiment, but a daily necessity of the meal. The object of this society is to encourage the culture of fine fruits, so that they may be placed within the reach of all classes, freely and abundantly, the poor as well as the rich. The work is indeed of great magnitude. With a

country so varied in soil and climate, capable of producing almost all the fruits of the globe, constantly opening up to us new resources and demands, we have occasion for new, constant, and untiring energy and enterprise.

DETERIORATION OF VARIETIES.

We have also another difficulty to encounter—namely, the deterioration of varieties. However we may theorise in regard to this matter, it must be admitted, from the practical point of view, that some fruits have so declined as to render it absolutely necessary to replace them with new varieties. And what has been true in the past will be so in the future. Witness certain kinds of Pears in our own day; the St Germain, Crassanne, Brown Beurré, White Doyenne, and others, once so excellent, where are they now? Some of these are occasionally to be seen on the virgin soils of the West and South, yet for the great majority of locations they will continue to be worthless. And even on these new soils, where they now flourish in their pristine excellence, we have reason, judging of the future from the past, to anticipate that no long time will elapse before this decline will reach these now favoured regions. Within less than a generation the Pears alluded to flourished throughout Western New York as well as, in their early history, on the propitious soils of France. And even among the more modern Pears we notice—as, for instance, in the Beurré Diel and Flemish Beauty—signs of the same decadence.

And so with the Grape. Where the Catawba and Isabella Grapes once succeeded perfectly, they seem now to be failing, and, in many sections of our country, are no more to be relied on. Even the Concord, now so popular, indicates that in time it may follow in the same degenerate strain. While we indulge in these forebodings, we cannot but express the deep regret we feel for the loss of such fine fruits. Other fine fruits are following in the same course. This should not discourage us, but rather increase our enterprise for the production of new sorts, to keep up with the deterioration which seems incident to cultivation.

The mission of our society is to learn not only what varieties succeed in certain States and districts, but throughout the country. Already we have ascertained that some kinds flourish throughout a wide range of territory. For instance, the Red Astracan Apple and Bartlett Pear seem to prosper everywhere. When we reflect on the wide expanse of territory daily becoming susceptible of cultivation, and that our fruits must ultimately be spread over these vast fields, it becomes a matter of great importance to increase our native fruits, some of which may be suited to these regions, and thus replace those which may decline. We therefore give a hearty welcome to the efforts of all who are labouring in this praiseworthy cause.

We rejoice that we enroll among our members so many who are engaged in the benevolent enterprise of producing new varieties of fruits. Especially would we recognise the eminent services of those associates who are devoting their lives to the study of vegetable physiology and of the insect tribes, and on whose patient investigation we so much depend for the discovery and cure of diseases, and the destruction of insects injurious to our fruits. Nor can we too highly appreciate the lives and services of those pioneers in pomology, by whose intelligence and zeal most of our fine fruits have been originated or disseminated—of Van Mons and Esperen of Belgium, of Duhamel and Poiteau of France, of Knight and Lindley of England, of Cox, Prince, Dearborn, Lowell, Manning, and Downing of the United States, and of others, now living, whose praise is in the mouths of all. What millions have rejoiced in the fruitage of the Summer Bon Chretien and Autumn Bergamot Pear, coeval in history with the Roman Empire; the Newton

Pippin and Baldwin Apple, the Doyenne and Bartlett Pear, the Isabella, Catawba, Concord, and Scuppernong Grape in our own time !

Who can estimate the importance and value of a new variety of fruit, which shall be adapted to the wide range of our rapidly-extending cultivation? He who shall originate a new Apple, Pear, or Grape, which shall be worthy of being handed down to posterity, should be held in remembrance as a benefactor of mankind, as well as a Franklin, Fulton, Morse, or Field. He who shall discover a remedy for the Pear-blight and other diseases incident to vegetation which now affect our trees, or an easy method for the destruction of the horde of insects so alarmingly injurious to our fruit crops, shall have his name transmitted to future time as second only to those who discover methods for the alleviation and cure of diseases which affect the human system. What greater temporal comforts can we leave to our heirs than the fruits of the orchard and garden? What more valuable testimonials of a philanthropic life than the trees we plant for future generations? Trees are the best landmarks of a noble civilisation. Trees are a rich legacy to our heirs. Trees are living monuments to our memories. Fruits are perpetual mementoes to our praise. The man who plants a fruit-tree is a benefactor of his race; and when we shall have gone to our rest, when the fragrance of vernal bloom shall no longer delight the senses, when the verdure of leafy summer shall no longer inspire the soul, when the golden harvest of mellow autumn shall no longer gladden the sight, the tree shall live to bless those who shall follow us. And when, in after ages, posterity shall recline under the shade of the trees planted by our hands, and gather from their bending branches the luscious fruit, will not some grateful heart remember the giver, and ask, "*Who planted that old Apple-tree?*" How beautifully is this sentiment portrayed by our own poet Byrant:—

What plant we in this Apple-tree?

Sweets for a hundred flowery springs,
To load the May wind's restless wings,
When from the orchard row he pours
Its fragrance through our open doors.

What plant we in this Apple-tree?

Fruits that shall swell in sunny June,
And redden in the August noon,
And drop when gentle airs come by,
That fan the blue September sky;
While children come with cries of glee,
And seek them where the fragrant grass
Betrays their bed to those who pass,
At the foot of the Apple-tree.

And when the thousands who have enjoyed its fruits and shared its blessings are buried, like its own roots, deep in the bosom of mother earth,

The children of some distant day
Thus to some aged man shall say,
"*Who planted this old Apple-tree?*"

PROGRESS OF POMOLOGY.

I have on a former occasion alluded to the wonderful progress of pomology in our day, and I deem it proper, although at the risk of repeating previous statements, to erect, as it were, some landmarks by which we and those who come after us can measure its advancement. With all the boasted civilisation of Greece and Rome, we are far in advance of their highest standard in all that tends to the real comforts of life and the elevation of our race. The science of pomology forms no exception to this remark; indeed, the improvement since

the time of Pliny and Columella is infinite. From the fall of the Roman Empire to the close of the seventeenth century, it is true, we know but little of its progress; for this, like all other arts and sciences, was hidden by the darkness which enveloped the ages during so large a part of these years. Pomology, like other refined pursuits, found an asylum in the only sanctuary then known for the arts of peace—the monastery. In these quiet retreats were cultivated and perfected the best varieties of fruits; and doubtless some which they have transmitted to us have been produced from seed under their patient care and nurture. Although the records of pomology during these years are but few, still we may glean some idea of the manner in which the art was preserved, from incidental notices, from the old trees still found growing amidst the remains of these institutions, and from the new and fine varieties whose origin is traced to them, and whose names they often bear. Nor do we doubt that the Grape, now exciting so much attention, received especial care, not only for the rich clusters which crowned the dessert, but also for the “wine which maketh glad the heart of man.”

But how meagre the list of good fruits which have been handed down from them when compared with those of later times! If any of the Pears of Roman origin yet remain, they are only to be found among the cooking varieties, or else they are so dry, coarse, and inferior, as to merit a place only in the pages of the writers of two centuries ago. Now we have collections consisting of ten to fifteen hundred varieties, among which are many embracing in the highest degree all the characteristics of size, beauty, flavour, and form, which constitute a perfect fruit; and instead of fruits confined to a short period of use, the art of the cultivator has extended the season of maturity over the greater portion of the year. Think what Governor Endicott of Salem or Governor Stuyvesant of New York would have said, if they had been told that their example in the first planting of a single Pear-tree would be multiplied into thousands of orchards, and that, instead of a few Pears for the summer season, every month in the year would be supplied with its appropriate sort; or what was then considered an aristocratic tree, to be trained and nursed only in the gardens of the opulent, should be planted in orchards of five or more thousands of a single variety, and be enjoyed by the Western pioneers as well as by the Eastern magistrates!

How would the soul of the generous Peregrine White, of Pilgrim memory, have swelled with joy had he known that, in a little more than two centuries from the time of planting his Apple-tree at Plymouth, this fruit would become almost an article of daily food; or that his orchard of one tree would be magnified into orchards of twenty thousand or more trees of a single variety, as in the case of Mr Pell's Newtown Pippin! And although it is recorded, some years after, that Governor Winthrop had a good store of Pippins in his garden, yet neither of these gentlemen could have foreseen the influence of their example in New England, to say nothing of the three counties of Western New York, then and for more than a hundred and fifty years afterwards a wilderness, from which there have been sent annually to market five hundred thousand barrels of Apples, in addition to what were retained at home for consumption; or the new orchards of our youthful State of Nebraska, some of which contain seven thousand trees, mostly in bearing at the age of six or eight years; or the other millions of trees planted, sufficient to regale the appetites of every man, woman, and child in the United States with their fruit.

What would the Cæsars, with all their luxuries, have thought of their half-formed mongrel Peaches, so deleterious to health, when compared with the delicious varieties into which they have been developed by the hand of skill, guiding

and assisting Nature in her efforts for improvement, so that in many parts of our country they are almost spontaneously produced; a fine variety being secured merely by planting the stones, without the trouble of budding or grafting? Or what would De la Quintiney, that skilful gardener of Louis XIV., have thought, when comparing the products of the world-renowned Peach-gardens of Montreuil with the immense quantities raised in our Southern, Western, and Middle States, especially the latter; from whence are brought to New York—not to speak of other great markets—between one and a hundred car-loads, besides those received by steamboats and other sources, daily; making an aggregate of from eighty to one hundred thousand bushels of this delicious fruit—affording in number more than two Peaches to every inhabitant of that great city!

But what shall be said of the Grape? The only two varieties generally cultivated in our northern gardens twenty-five years ago were the Isabella and Catawba. What would Mrs Isabella Gibbs and Mr John Adlum, to whom we are so much indebted for the introduction of these varieties, have said, if they could have realised that within less than fifty years the cultivation of the Grape would be extended almost over our whole Union? that, in addition to these, we should have numerous varieties adapted to every section of our country; that millions of Vines would be planted on our hill-sides and the banks of our Western lakes and rivers; that wild and waste lands would be converted into smiling vineyards, rivalling in luxuriance and abundant product the Vine-clad hills of Europe; that Vines would be sold for a few cents each, thus enabling the humblest cottager to sit beneath its shade, enjoy a fragrance richer than the Rose, and pluck for the wife and weans the purple clusters from his own Vine, or from the ripe berries if he choose, “crush the sweet poison of misused wine”? Surely, even the sanguine Nicholas Longworth, the great American pioneer of Vine-culture—all honour to his memory—could not have predicted that, within half a century, the manufacture of this juice would exceed in a single State more than five millions of gallons per year.

Mark the amazing increase of the small fruits. Take, for instance, the Strawberry. Within the memory of many of this assembly, we were dependent almost wholly upon the wild species of the field, or the few which had been transplanted to our gardens. It is only about thirty years since the first attempt, we believe, was made on this continent to raise from seed a new and improved variety—thanks to the enterprise of Mr Hovey, which gave us a fruit that has stood the test for a whole generation of men. Compare the small, dry, seedy, red, and white-wood Strawberries of our youth with the numerous larger luscious varieties which have come to notice in our day. Not only have the latter increased to hundreds of varieties within this time, but the quantity produced is in a still greater ratio. What would our fathers have said at the despatch from a single railroad station in the Western States, where fifty years ago the emigrant had scarcely set his foot, of one thousand bushels of Strawberries daily to market, or from another dépôt on the unoccupied lands of New Jersey, taken up within fifteen years, a similar quantity sent to the New York market daily; or, still more remarkable, from Norfolk, in Virginia, where seventeen years ago the cultivation of this fruit had not commenced, and from whence during the present season three millions of quarts have been sent to the Northern markets!

Thirty years ago we possessed only two good varieties of the Raspberry, the Red and White Antwerp; now we have numerous fine kinds; and where a man thought himself fortunate to gather a saucerful, it is raised, as by our friend William Parry of New Jersey, by hundreds or thousands of bushels for the market. So of the Currant and Blackberry. Of the latter not a single variety

had then been introduced into our gardens or catalogues ; now we have many new kinds, and the product is equally great.

Such is the onward march of civilisation and refinement in our own day. How cheering and inspiring the omens of the future ! Our illustrations in some particulars may seem to be too highly coloured and too hopeful, but we think time will prove them to be substantially correct. Such is our rapid progress, that if any apparent over-statement has been made, its correctness will be verified or even exceeded while we yet speak.

How would our eyes have been gladdened, and our hopes have been encouraged, if in our early exhibitions we could have had a vision of the extended displays of the present time, where, instead of two baskets of fruit, presented at the first exhibition of the Massachusetts Horticultural Society by Robert Manning, the great Eastern pioneer, were afterwards brought from the same garden nearly three hundred varieties of the Pear, not to speak of other fruits ! And how would our confidence have been strengthened and our zeal have been excited, if any prophetic eye could have pictured to us a view of such magnificent exhibitions as those witnessed at St Louis at our last session, or could even have foreshadowed the cornucopial display in the grand Philadelphia temple of horticulture on the present occasion !

And how would the founders of the Pennsylvania and Massachusetts Horticultural Societies, the first, and for many years the only, societies on this continent for the promotion of horticulture, have rejoiced in the anticipation of the multiplication of institutions, all of which recognise fruit culture as a prominent object. The first agricultural society and the first horticultural society in this country were established in this city, the former in 1785, the latter in 1827. Truly, "a little one has become a thousand," there being now enumerated on the books of the Department of Agriculture at Washington more than thirteen hundred organisations, including State, county, and town societies, for promoting the culture of the soil.

The first agricultural newspaper printed in America, the 'American Farmer,' made its appearance in 1820, less than fifty years ago. How would the enterprise and ambition of its valiant editor, John S. Skinner, have been excited by the idea that within half a century some of its successors would enroll on their subscription-lists the names of one hundred and fifty thousand persons, thereby exciting the surprise and admiration of the Old World ! Magazines, periodicals, and papers devoted to horticulture, furnish testimony equally gratifying ; and where, within the knowledge of some present, there was but one horticultural journal published in our country, there are now numerous monthlies and periodicals, whose columns of editorial and other appropriate matter compare favourably with the best European publications of the day. Nor is this all. Thousands of secular and even religious papers have special columns on these subjects, without which their success would be doubtful.

Some are here to-day who remember the condition of the few nurseries on our eastern shores fifty years ago—for there were scarcely any in other States. These were limited to a few hundred acres in all. Those in New England, from whence emanated so much of the early interest of our country in fruit culture, were not, in total extent, half so large as that of a single establishment in Western New York at the present time, supposed to be the largest in the world. Nurseries of large extent are now distributed throughout the length and breadth of our domain, sending out annually an amount of trees and plants that would then have been deemed fabulous ; single towns, like Rochester or Geneva, possessing three thousand acres or more devoted to the nursery business. Nor should I omit to

mention in this connection the improved methods of cultivation, the novel processes of propagation, the wonderful multiplication of trees, plants, and vines, and the never-ending desire to possess everything new, from whatever source it may come, and the universal zeal to ascertain the true value of all new productions.

The ingenious methods of gathering, preserving, and packing of fruits, and the improved means of safe transmission to distant markets, are among the most important advances in this new era. To such perfection have these been brought, that not only our small tender fruits come to us a hundred or a thousand miles in good order, but the Grape and the Pear travel from the Pacific to the Atlantic coast. While penning this address, Pears and other fruits have come to our own hands from California in perfect condition; and, to add to our surprise, the Pears of that State are finding a market in Japan! Our cheap and convenient postal facilities for the transmission of seeds, scions, and plants, promoting the introduction of new fruits into the remotest parts of the land, are such as no other nation has ever enjoyed, yet not more than commensurate with the demands of our extensive territory; and we trust the day is not distant when we shall have equal facilities for such reciprocal advantages with the whole world.

NOTES FROM THE OLD COUNTRY.

After leaving Edinburgh, we called at Dalkeith, the noble seat of the Duke of Buccleuch. It was here that M^rIntosh, author of the 'Book of the Garden' and other works, was once gardener. The same position is now held by Mr Thomson. We will say *en passant*, that to be able to obtain and keep such a situation as the Duke's gardener at Dalkeith, is a great honour. We have no similar position for men in this country. The nearest approach might be that of superintendent of a park, large cemetery, or the like. The flower-garden attached to Mr Thomson's dwelling would be something to talk of here, let alone that of his employer.

The gardens noted at Dalkeith are some distance from the palace, and are part of the fruit gardens of the same. Except for noble park-like expanse, and shrubs, the palace has no particular dressed scenery, the flowers being, as we said before, in and around the fruit-garden—greenhouses, fruit-houses, &c. These houses, if we mistake not, were designed and built while M^rIntosh was gardener here, and the 'Book of the Garden' contains plans and designs as then executed, given at the time as the most perfect samples of glass structures for the purpose then extant.

The present manager has sent out many new Grapes of great merit, but White Lady Downes, a very fine late-keeping variety, is yet to come out, and is considered equal in every respect to the well-known Black, with the additional advantage of being of needed colour. His Golden Champion Grape had bunches full 5 pounds. In one house we noticed Vines with first-class fruit on year-old Vines. Here were some houses long since cleared of fruit, the Vines soon ready to be pruned and started for next year's crop; some were then "just right for the tooth," some with 10 pound bunches, while others were as late as it is possible to have them. The idea is to have the late keepers hang on until the first early crop is ready. Pine-apples are here grown in very large quantities—some 800 plants in all: everything is in the most perfect order, and in quality the plants hard to beat. Many houses devoted to flowers were a sight to see; one at the time of our visit had nothing but Calceolarias in it, had been in flower eight weeks, but was still a bank of blossoms. Another house had mostly Geraniums, of the Zonal class, including many double ones, and certainly for dazzling effect it was extremely rich. Each plant was perfect in itself; none very large, while the whole was one bank of blazing colours. Very conspicuous was a variety called Le

Grand, with trusses 5 or 6 inches across. Madame Lemoine, a double flower of the colour of Christine, was very beautiful ; while another called Perilla had a zone or horse-shoe marking, very fine and distinct. The Duke of Edinburgh was one of the finest of the bronze section, and showed off to advantage, having very novel coloured foliage. Very conspicuous in this house, scattered here and there, were specimens of a plant new to us—the *Statice profusa*, with pleasing light-blue flowers. It is much thought of here, and said to be one of the best of things to force into flower at all seasons.

It is impossible within our limits to mention a tithe of the houses or their contents, so will just run over a few things that struck us favourably in our passage through them. Among Orchids, several charming Vandas were in flower, particularly a huge *V. teres*, and another of *V. cerulea*. Mr Thomson was using largely a new system of growing Orchids on sandstone with a very happy effect. Near by stood a fine Suava in fruit, said to be of delicious flavour. A new Maiden-Hair Fern called *Adiantum Farleyana* is a very fine thing, having the appearance of a miniature Ghingo tree. A fine *Lomaria bella*, also *Sibotia spectabilis* ; some very good Ericas, particularly *E. retorta major*, *Jacksonii*, *Marnockii*, and Florida nicely in flower : a *Savillia major*, 4 feet through, an *Alonea superba* with delicate white flowers ; very fine.

We had long desired to see some of the examples of the bedding-out process we so often read of as practised in Britain now, and had the opportunity here for the first time. And certainly it deserves all that has been said of it. The masses of bloom here to be met with, arranged with the precision almost of a picture, chains formed of plants, kept as distinct to the line as a well-trimmed box edging, of all and various heights to suit the grouping, with colours to match and harmonise on philosophic principles, or the fancy of the designer ; every plant in its place, neither too high nor too low ; walks between some with the nicest-looking gravel, with other beds set in the verdant green of the lawn, certainly formed a picture we shall not soon forget. Upwards of 70,000 plants are used to create this effect. Many at putting out are of goodly size. There were whole carpets of blue, formed by very fine varieties of the *Lobelia* studded with specimen objects of colour, looking at a little distance like a blue lawn, with carefully-arranged groups of flowers methodically planted within it. This was an entirely new idea to us, yet nothing could be more striking. The compact, creeping nature of the *Lobelia*, makes it a good plant for such a purpose, and now that they have various shades of blue, white and even a dull red, quite a novel feature can be carried out by having a groundwork of the desired colour, with groups to represent flower-beds in any pattern wished, planted, as it were, in this floral lawn. No attempt of this sort can be made except where planting is done on a large scale, and where the situation is favourable to do so. But the idea there seems to be to find out new ways to do their planting, particularly portions of it, so that some novel or striking feature may be brought out each year.

The very great variety of plants the English gardeners make available for the purposes of bedding is not the least remarkable feature of the subject. We doubt whether there is a plant with any pretensions to continuous flowering, or conspicuous foliage, that has not, at one time or another, been tried as a bedding-plant. By this we do not mean here and there one turned out into the flower-border in a haphazard kind of way, but in regular grouping, either as a single colour, a line, or figure. As we propose to take up this bedding question a little more thoroughly hereafter, we will for the present leave out some specimens of grouping of which we took notice at the time.

THE VEITCH MEMORIAL.

WE understand that so spontaneous and general has been the desire that some lasting memorial of this eminent horticulturist should be formed, that a most influential committee has been convened to take the preliminary steps for carrying out what seems to be the general wish of all who take any interest in that department of natural science, in which he stood as a star of the first magnitude; and we have no doubt the result will be worthy of the nation, as well as of the memory of him whom it is intended to commemorate.



R E V I E W.

A BOOK ABOUT ROSES: HOW TO GROW AND SHOW THEM. By S. Reynolds Hole. William Blackwood & Sons, Edinburgh and London.

This is a well-got-up volume of 277 pages, and though the greater part of the substance of it appeared in our columns from time to time, we advise all our readers to purchase it.

As an amateur Rose grower and exhibitor, our author has not, and never had, an equal; he has won more than thirty silver cups "open to all England;" and as a writer, his pen is as facile as his friend John Leech's pencil, consequently the book will be read by thousands who care little about Roses, and they will be amply repaid in the literary treat it will afford them.

We quote the Dedication; it is in the author's own style:—

"I dedicate my book to my wife, because

"There's a Rose looking in at the window,
In every condition of life,
In days of content and enjoyment,
In hours with bitterness rife.

"Where'er there's the smile of a woman,
As bright as a beam from above,
'Tis the Rose looking in at the window,
And filling the dwelling with love."



Notices to Correspondents.

IN reply to one who signs himself "Respect for the Under-Gardener," I may mention that the gardener did *not* "board" me. Can any one in their right senses suppose that he would do so for two or even three shillings per week, and give me instructions at the same time? I paid two shillings per week for instructions only; at the time, I thought it hard—very hard; but I have since found that I received three times the value of the paltry premium I paid him. In fact, I am pleased that I surmounted the difficulty, one of the first that I met on entering the garden-doors.

T. W. B.



THE GARDENER.

DECEMBER 1869.



OUR NEW ARRANGEMENTS FOR 1870.



THE Proprietors beg to intimate to their readers that they have made new arrangements in regard to the editing of the 'Gardener,' which they trust will prove acceptable to their Subscribers, extend the usefulness of the publication, and secure a largely-increased amount of public support. Commencing with the Number for January 1870, the duties of the Editorship will be jointly discharged by Mr William Thomson, Dalkeith Gardens—who, since the establishment of the 'Gardener,' has done so much to insure its marked success, and who will continue to give the work the benefit of his great practical experience—and Mr Richard Dean, Ealing, London.

The aim of the Proprietors in adopting these new arrangements is to give to the 'Gardener' a broader character than has yet belonged to it, and to make it acceptable in all parts of the United Kingdom, by including the widest range of subjects related to Horticulture. Practically, the Proprietors seek to give to the work, which will be henceforth published in London, the tone and scope belonging to a national horticultural organ.

While the general line which has been followed in the past, and which has proved so successful under Mr Thomson's management, will be adhered to, a larger prominence will be given to Floriculture; and, especially in the department of Florists' Flowers, every endeavour will be made to supply the latest and fullest information. This department will be under the immediate superintendence of Mr Dean. All special information of interest will be chronicled in its proper place; condensed reports of the leading Exhi-

bitions, giving their salient and interesting points, will be furnished, and other matters coming under the same category ; and under the head of "Notes of the Month" will be given such miscellaneous intelligence, likely to be interesting to amateur and professional horticulturists, as may not conveniently come in under other headings.

Under the head of "Garden Requisites" will be duly chronicled all inventions and improvements of real importance to the horticulturist ; while "Garden Economics," under which will be included Bee-keeping, Wine manufacture, Preserves, &c., will have due prominence. No exertion will be spared to render the 'Gardener' a complete monthly manual for all classes interested in the subjects to which its columns are devoted ; and the Publishers confidently anticipate that, under the able superintendence of Messrs Thomson and Dean, it will hold its place among the leading horticultural organs of the day.

EDINBURGH, *December* 1869.



THE CULTIVATION OF HARDY FRUITS.

THE PLUM.

(Continued from page 500.)

AT the end of the first season's growth—no matter whether the tree has been grafted or budded—the cultivator must determine what mode of training he intends to adopt. The fan is by far the best method, although the horizontal may, for variety's sake, be introduced occasionally. The principal objection to horizontal training being adopted for the Plum is, that the very best managed and the most healthy trees will at times lose a branch or two. Sometimes they wither and die without any apparent cause, and at other times gum or canker will be the destroying enemy. It will thus be evident that when a branch gives way through any of the above causes, the vacancy cannot be so readily made up, and, as a natural consequence, the tree becomes unsightly and irregular in its outlines and general appearance. Further, if the horizontal method be adopted, the tree is not nearly so easily managed, nor yet is the general effect ever so good. It is a well-known fact to all gardeners, that to obtain a good and well-balanced Plum-tree by any mode of training is a difficult task, as it is very apt to produce large strong branches on the one side, and short weak ones on the other. It is therefore much easier to work against these inconsistencies where the fan system is adopted, as means can be used to greater advantage to obviate this than when horizontally

trained. No doubt it can be managed either way—by bending and twisting down the strong shoots, and elevating and encouraging the weaker, at the same time root-pruning the tree on the strong side without touching the other. These and some other methods may be adopted with success in either case ; but where the fan system is taken, the shoots can for a season or two be twisted and bent, yet so well disposed all over the wall that the existence of such contortions can scarcely be detected ; whereas, by the other method, it cannot be done without presenting a very ungainly appearance. For these reasons we would recommend the fan as the best mode of training to be adopted for the Plum.

This having been decided upon after the wood is ripe and the foliage fallen, if three nice ripe young shoots are upon the young tree, let the centre one be selected and cut down to within 3 or 4 inches of where it started, and each of the side ones cut back to about 18 inches or so. Care should be taken to try, if possible, to get the top bud of the leader on the front of the shoot with two well-placed eyes below it, one looking towards the right and the other towards the left, the former to form a leader and the latter to make side branches. Should the two side shoots prove of very unequal proportions, we would recommend that both be removed, and the tree treated as if it only possessed one shoot. Where one shoot only is produced from the graft or bud, it ought to be cut back to within 9 inches of the base, remembering to have the buds placed as already directed for the leader. We recommend this height as the best for the Plum, so that if the shoots or under branches of the tree are wanted about 1 foot from the ground, they may not be taken away at right angles from the stem. Mr Thompson, in the 'Gardener's Assistant,' says, that where this method is adopted, "the branches will not be so liable to die off as if they were taken at right angles, which, in training stone-fruits, should never be the case." Two very good reasons may be given for this—the first, that in a tree of so robust and vigorous a nature as the Plum, if the branches are taken away directly at right angles from the stem, those branches above which are trained oblique or perpendicularly will be sure to rob these under ones to a very great extent, and, as a natural consequence, if they do not die, they will, at all events, make but very slow progress. If, however, they are started 4 inches below, and brought up to the horizontal line at an angle of 45° or so, the results will be very different, as the juices of the tree will be introduced into their proper channels ere they reach the horizontal line, and they will therefore be the better able to fight the battle for existence. The second reason is, that, from the very nature of the Plum, it is to be expected that in bending down its branches to the right angle of its per-

pendicular there will be considerable damage done to the cellular tissue of the branch—the evil of which no gardener needs to be told. Where the young tree has been cut as we have above recommended, it will the second year have three branches, and should be managed as already directed for a young tree having three growths.

The following season it will probably make from seven to twelve or fourteen shoots. We would advise all to be kept regularly pinched during the summer, save seven. Three of these ought to be on the leader, and two each on the two side branches, one being at the point of each shoot to form leaders, and the other four so placed that they will form well-positioned side branches, those upon the under shoots being upon the upper side thereof. The under branches ought at first to be trained at an angle of about 45° , and gradually brought down into their horizontal position, as we have recommended for the Pear. Where, however, the branches may be of unequal proportions, it may best suit the purpose to elevate the weak side to this angle, and depress the strong to the horizontal line; and where this does not of itself accomplish the end, let the roots upon the strong side be cut pretty well back, which will greatly assist the accomplishment of this object. If the tree is pretty vigorous all over, we would recommend that this season ought to be the first to introduce a regular course of root-pruning, which, while tending to make the tree healthy and robust, will also be the means of inducing early fertility. Out of about four dozen young Plum-trees here, about four years of age, there were a considerable number which bore a few Plums this year; and one in particular—Coe's Golden Drop—produced and perfected twenty-eight handsome Plums, which, in a commercial point of view, were at least equivalent to the price of the tree. If thus a little trouble in root-pruning can, at the end of four years, produce such results, no one can doubt the practical utility and economy of so doing. The operation may be performed any time during autumn and winter, but the earlier it is done the better will be the results. In the case of a tree bearing fruit, we would not do so till November, in case of losing the crop; but where there is no crop, the end of August, September, or October will be the best time to do so, and the probability is, that next year there will be as much fruit as may counterbalance the cost of labour employed. In root-pruning the Plum, the same things are to be remembered as we have already mentioned when treating of the Pear and Apple—viz., digging right round and underneath, cutting the roots back pretty freely, according to the size and age of the tree, and providing the roots with some nice fresh materials, such as shall be hereafter recommended. This operation may be performed regularly every two or three years, until the tree has arrived at full size and bearing, and even

afterwards an occasional root-pruning will be found of much benefit. It will be unnecessary for us to go into more detail regarding the further pruning and training of the Plum, as in most particulars it is the same as recommended for the Pear. It is a good thing, however, to be always introducing a few fresh shoots, as the older branches and spurs sometimes become a little exhausted, and are all the better for being renewed. This is a good method to adopt, as sometimes the spurs become so attenuated and far removed from the wall that it is necessary, for appearance' sake, to have them removed—so that, where such provision is made, no blank will be made, and their want will not be so much felt.

Plums are very seldom used as riders, but where this is the case, they ought to be either grafted or budded about 6 feet high, or have a leader grown up to that height from the dwarf-worked trees, when they may be cut over at the same height, and managed in exactly the same manner thereafter, as we have recommended for the dwarf-trained trees. The principal use to which these trees may be put is between the dwarf-trained ones, to fill up the walls until such time as the permanent ones are large enough to nearly do so themselves. Looking at the matter from an economical point of view, we would not recommend them, as the plum being a rapid grower, the dwarf trees would require the greater part of the wall to themselves before any great crop could be expected from the riders, unless they were established and bearing trees when planted.

If the horizontal mode of training is to be adopted, let the leader be cut back as already directed to about 9 inches from the ground, leaving three nice plump buds at the top for the leader and the two first horizontal branches. At the end of the first year's growth, cut the leader back to within about 9 inches from where it started, leaving, as before, three nice buds to form a centre and the second course of branches. The side shoots may be cut back to the first bud as far out as the wood is ripe, as it will not be necessary to cut so far back in this mode of training as in the fan, as no side shoots are required except from the centre. The side branches ought to be elevated at an angle of about 45° , and be gradually lowered until they arrive at the horizontal line about 1 foot from the ground. The same course of pruning and training may be regularly pursued year after year, until the tree has reached the top of the wall, when it should have a regular course of branches from top to bottom, about 9 inches apart, which we consider to be wide enough for almost all sorts of Plums, except a few of those possessing very large leaves, which may be benefited by having the distances between the branches increased to about 1 foot apart.

It will be found of great advantage and benefit to the trees if the

cultivator would go regularly over them in summer, during the growing season, and pinch back all the shoots save those intended for branches to the fourth or fifth leaf. These in turn will probably produce laterals, which may be pinched back to the first eye from which they started, and at the winter pruning the original shoot should be cut to about 1 inch in length. This will, in all probability, form a fruit-bearing spur; but should it not do so the following season, but send forth shoots again, these may be treated as before, until such time as it shall form a fruiting spur.

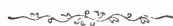
In the case of a tree still continuing to grow very unequally after the means already directed have been adopted, the following plan may be found of great benefit. We never have adopted it ourselves, as we never needed to do so, nor yet have we seen it performed by any other; yet we have every confidence in its efficacy, as it has been adopted with success by one whose word on everything connected with fruit-tree culture can be depended upon. Mr Thompson, in the 'Gardener's Assistant,' thus says regarding it: "In addition to other means tending to diminish excess of vigour, some of the leaves should be clipped across the middle with sharp scissors. Every third leaf may be safely clipped in this manner; if that is not likely to prove effectual, every alternate leaf may be so treated; and in obstinate cases we have seen every leaf on a shoot clipped half away with no injurious results, but, on the contrary, with the most beneficial effects, inasmuch as wood of only the requisite thickness was obtained, instead of a shoot too thick to be retained in that part of the tree, and which would consequently have to be cut away at the winter pruning. Thus a considerable waste of vegetation is avoided, as well as the probability of inducing disease, for gumming frequently takes place when very strong shoots are cut off." This appears to be a very practical and at the same time simple and safe remedy, and is well worthy of a trial by those who may have failed to obtain an equal distribution of the sap all over their trees. However lightly some may look upon it, yet, nevertheless, it is a thing of the first importance, and should be carefully attended to, as, if the sap is not dispersing itself in pretty equal proportions all over the tree, it cannot and will not long continue to enjoy good health—nay, more, the very life and fruitfulness of the tree are at stake, and the sooner the matter is set to right, so much the better it will be for the future wellbeing of the tree.

Another thing of vast importance, always to be observed in the wall cultivation of the Plum, is never to allow shreds or string to become so tight upon the bark as to mark or injure it in the least. If this should occur to any extent, the probability is, that if the branch is not broken over altogether, gumming will be the after-result. The

nails should also be kept some distance back from the branches, for if they come in contact with them, or should the hammer in driving them in strike or bruise the branch in the least, gumming or canker, or perhaps both, will be the consequence.

JAMES M'MILLAN.

(To be continued.)



THE GLADIOLUS.

THE Gladiolus is now fully established as one of our most prized autumnal flowers. Its colours, many-hued and glorious, its stately spike of bloom, and the simplicity of its culture, combine to make it a favourite. Year by year its charms are increasing, and year by year the admiration and love of its growers become stronger. A very marked improvement has within a short period been made both in its shape and the combinations of its colours. But its votaries are not always so successful in its cultivation as they would wish to be. From the many complaints we hear every season of the failure of the Gladiolus, it might be concluded that its cultivation is difficult, and the results precarious. I believe, however, that whenever there is more than a very small percentage of failure or disease in a bed, it is the result of carelessness in some part of the management of the bulbs or the soil. Many growers have been misled by the hasty conclusions of some writers in regard to the requirements of the Gladiolus, and by following their advice have, after an immense amount of trouble altogether unnecessary, been repaid only by the loss of their roots. Having been successful for the last seven years in growing the Gladiolus with a very small percentage of loss (and under the best management there will always be a few diseased bulbs), and also in keeping my bulbs in as good condition as regards bulk and health as when they were imported, I think I may conclude that my simple treatment of them throughout the year suits their habits and constitution. I may mention in passing, that during the last two exceptional, and to many growers fatal, seasons, I have had large beds of Gladioli strong and healthy, with foliage of the deepest green, and the bloom splendid.

The first care of the Gladiolus-grower ought to be, of course, the securing of a stock of good healthy bulbs. For this end an early call should be made at the dealers. In selecting bulbs, see that the flesh be plump, firm, and clean, free from black spots anywhere, but particularly about the lower part where the rootlets shoot. Bulbs with black spots will very likely be of no use the second year, and even

may tell upon the appearance of the bed before midsummer. Some people invariably choose the largest bulbs, but it does not follow that these are the best ; in fact, the ordinary-sized bulbs seem to double themselves most readily. My own practice is, always to secure any bulbs I need as early in the season as possible, knowing that they are better in my possession than lying exposed in an open shop. This is just one of those little bits of care which too many overlook, and consequently they are left but a small choice.

Some few years ago, when the *Gladiolus* began to be more extensively cultivated than it had been since its introduction, one could scarcely take up a horticultural magazine without meeting with some absurd theory about its habits and growth, and the soil requisite to grow it in. But the fact is, that the *Gladiolus* will grow vigorously in any common garden soil of fair quality, which is not too stiff or damp. Both of these latter conditions can be remedied by a little trouble. To keep *Gladioli* in proper health, I think it is essential that the ground where they are to grow should be manured in autumn, my experience having led me to the conclusion that no fresh manure should come into immediate contact with the roots. Therefore, about the beginning of November, or earlier, dig in about 5 or 6 inches of good strong manure. This is not an extravagant quantity, because the *Gladiolus* likes generous treatment, and it receives its food in the best condition when it is thoroughly decomposed and incorporated with the soil. As near the first of March as the weather will permit, give the bed a deep and thorough digging, that the roots may get far down for the feast your liberal manuring has provided for them. The bed being prepared, strip off part of the outer skin from the bulbs, in order to see that the flesh is sound, and to give the rootlets freedom to push, and then plant them in rows 9 inches from each other every way. A greater distance between the bulbs is useless, and a waste of space. The larger bulbs should be planted 4 inches deep, and the smaller 3 inches. It has been proved more than once that a stiff frost after they are planted will not injure them at these depths. Although all are planted at the same time, there will be a fine succession of blooming. A bed, say of a hundred varieties, will every day from the beginning of August to the middle of October be showing new beauties. In order to have an earlier bloom than can be had from those planted in the open ground, it is a common custom to start some bulbs in pots from January onwards, having them well advanced by the beginning of May, when they are planted out. As regards this point, the experience of others may be different from mine, but I have found that pot-planted bulbs were afterwards more liable to disease, and I have almost always lost them the following season. When the plants are about 2 or 3

inches above the ground, put a neat stake, about 5 feet high, to each, and tie up as soon as they need support. This is another little bit of attention which careless growers too long neglect, and the consequence is, that the wind does more damage to the unsupported stem than can be remedied for the season. When early and properly tied, the spike grows up as straight as a lance. The roots of Gladioli go so deep into the soil, that in ordinary seasons they do not require watering in our country ; but in exceptionally dry times, or in exceptionally dry ground, occasional watering is indispensable. A simple and effectual plan of watering them, as I have over and again proved, is to remove with the point of a trowel a little of the earth from half a dozen of them, near the stem at one side, taking care not to touch the bulb. Fill the holes successively with water several times, and then draw the earth back again. Though it takes a considerable time—which, however, the florist will not grudge—to go over a large bed in this manner, yet it is the best plan I know to make the water reach the roots. As the summer advances, it is certain that rust will manifest itself in a proportion of the plants, greater or less as the grower has been careful or careless in his previous treatment. It is a bad symptom when the foliage gets hard-bound about the stem, and of a dirty brown colour. A plant thus affected may flower, but after that it should be thrown away without compunction. No one understands the cause of this fell disease, and it is the more mysterious, seeing that from the same root will come a healthy and an unhealthy stem ; and when this is the case, at taking-up time cut away the diseased stem right down through the old corm, and there is a strong chance of the healthy one being no worse of its bad company.

Of course every one who grows Gladioli knows that they do not ripen equally ; yet, knowing this, many lift their whole stock at the same time. This plan cannot be commended, as it is neither advisable to let those really ready stay too long in the ground, nor to take up the late flowering ones too soon. Early in October the earliest flowered will very likely be ready for taking up. The practised eye knows the exact stage of yellowness in the foliage at which it is safe to lift the bulb. I have seen it recommended, by those who ought to have known better, to take up the bulbs even though the foliage be pretty green. To following this very bad advice, I have no doubt many of the failures of the following season may be attributed. When lifted at the proper time, the bulb remains firm and plump ; but if lifted too soon, it becomes softish and shrinks, and it must be impaired in strength. Now, one of the secrets of keeping the bulbs healthy for a long series of years is to let them remain in the ground till the proper stage of ripeness is reached, even though the weather be rough and the season well ad-

vanced. Generally speaking, the roots will not take damage though they remain in the ground till the end of November, if they are not ready for taking up sooner. Place them as taken up, with as much of a ball as possible (if they have not a ball it does not much matter), in some place under cover where there is plenty of air, and no chance of frost reaching them; and when thoroughly dried, take off the old root and the stem, and store away in bags in a cool dry place till planting-time. Any one who wants to amuse himself by growing the spawn, may sow it in boxes or pots when he trims his roots, or let it lie till spring. It will grow at either time, as I have proved. Few people, however, bother themselves growing the spawn.

The points of a *Gladiolus* are not difficult to determine. The colours should be clean and distinct, the individual flowers well opened, and all looking one way, and the flowers at the base of the spike should measure about 5 inches across. This, with good cultivation, should be a common size, but it is exceeded by some of the new varieties of this year, more especially by *Madame Desportes*, which, I am inclined to think, has the largest flowers of any variety yet out. There is also an older variety with very large flowers—*Velleda*; and *Shakespeare* and *Milton* stand high in this respect. Apart from mere size of flower, the most desirable varieties are those that open the greatest number of flowers at one time. We have now some excellent specimens of this class, and their number is slowly increasing. In this quality of completeness of spike, not one can match *Meyerbeer*. Approaching it are *Marquise de Pompadour*, and one not much grown with us as yet, but destined soon to become a special favourite—*Benoiton*, a flower of a fine shade of yellow. *Monsieur A. Brongniart* is a *Gladiolus* which is perfection in the freshness of its colour and in its shape. Its tints are as delicate as those of an ocean-shell. Perhaps its price has kept it from being so extensively grown as its merits deserve. Our old and cheap favourite, *Brenchleyensis*, is also notable for having its flowers open nearly from top to bottom at the same time. I do not intend, however, to give any lengthened list of what I consider best worth growing, but may remark, in passing, that the large number of new *Gladioli* sent out last autumn have proved themselves good, and they will keep their places for many years. Among the new ones to be imported this year, I notice some very desirable colours of the darker hues, which we greatly need; and one of the collection, *Armide*, of a light colour, is described as having flowers of “long duration.” If this is the case, *Armide* will be popular. In choosing from the descriptive lists sent out by dealers, this fact may be kept in mind, that there are fewer varieties not worth growing among the *Gladioli* than will be found among any other class of florists’ flowers.

When Gladioli are to be competed with, the spikes must be cut and kept in the house in bottles for at least three days before the show. This keeps the lower blooms fresh while more of the upper ones come out, and the spike thus becomes of more value. By keeping them too long in-doors, however, the blooms lose their characteristic colour and their shape.

In conclusion, I would impress upon the growers, and of course the lovers, of Gladioli who wish to keep their stock healthy, to be careful not to grow them two consecutive years in one place, and to take them up at the right time as each grows ready. It is my firm belief that one great cause of the failures complained of is their being taken up too soon (as many of them must inevitably be if taken up in a batch), and not being kept in a proper place during the winter. Damp is fatal to them. If the practice recommended in the present paper has proved so successful for years with me, there is no reason why it should not do equally well with others. There is nothing in the circumstances of my locality more favourable for their growth than in those of others.

JOHN MORRIS.

MAINS, near DUNDEE.



THE KITCHEN-GARDEN.

NO. VII.

(Continued from page 491.)

THE PARSNIP.

THE Parsnip is a native of Britain, and is most frequently to be found in its wild state growing in loamy soils by the waysides in England. In its wild state the roots are generally small, forked, tough, and have a rank taste. It has been cultivated in British gardens for a long time, but not so extensively as in the Channel Islands and in France, where there are soils peculiarly well adapted for its growth. In these places it sometimes attains an enormous size—3 feet in length and 4 to 5 inches in diameter.

The soil most congenial to its growth is a moderately light loam, deeply trenched, with the soil principally near the bottom of the trenches. In working the ground, it should be thoroughly pulverised, and all large stones removed where they abound. When a piece of light suitable soil is wanting, it is a good plan to make deep holes into the soil with a large dibble, in lines 2 feet apart, and 8 inches between the holes. Some light rich compost filled into the holes, and a few

seeds dropped into each, and in due time thinned to one plant, gives an excellent crop of this root in soils which are otherwise not adapted to its growth. But the most effectual way that ever I have adopted for the successful culture of roots such as this, and Carrots, Salsafy, &c., in clay soils, has been to burn the greater portion of the heaviest part of the soil, mixing it when burned with the best portion of the staple, adding at the same time a quantity of leaf-mould and light gritty soil, such as road-scrapings, &c.

The end of February or first week of March is a good time to sow for the production of fine roots, and on rich soils the drills should be 2 feet apart and 3 inches deep. It should, however, be borne in mind, in the culture of this vegetable, that a soil highly gorged with manure—though such with plenty of room will produce immense roots—does not produce them so finely flavoured as when the soil is less rich; hence the reason why it is desirable to place the manure deep in the soil, to produce a direct downward growth in the roots than would otherwise be the case. Medium-sized roots are invariably the finest, from the rank taste which is peculiar to Parsnips both in their wild state and when over-stimulated with manure.

The after-culture is very simple, consisting of thinning the crop to about 8 inches between plants, keeping the ground free from weeds, and well stirring occasionally between the rows. The Parsnip being much hardier than the Carrot, and best when newly dug out of the ground, a portion of the crop should be left in the ground when the other portion is dug up, usually about the beginning of November. Those lifted keep freshest when packed in moist sand, and those left in the ground can have some loose stable litter strewn over them, so that, should it be frost when it is necessary to lift them, it can be easily done.

The old "Hollow Crouner" and more recently introduced "Student" variety are the best. I find the latter the cleanest grower of the two, and less subject to forking. This root is much more extensively cultivated and consumed by the cottager in England than in Scotland. It is considered wholesome, and, when properly cooked, is palatable and nutritious, as it contains a good deal of sugary matter; and when slowly roasted in hot ashes, it becomes nearly as farinaceous as the Potato. The English labourer looks upon it as one of his choicest roots; and boiled and eaten along with his pork or bacon in winter, it forms a very desirable variety of vegetable.

It was strongly recommended as a substitute for the Potato, when that king of vegetables was so critical a crop. But although the Parsnip is undoubtedly a hardy and tolerably nutritious root, it is not likely ever to become very extensively used, as soils best adapted to

its growth are likewise best for the Potato, which, so long as it remains what it is, can never be superseded by any known root-crop. The Parsnip is, however, generally cultivated in all gardens of any consequence, and is in considerable demand through the winter months.

PEAS.

Of what country the common Pea is a native is not exactly known, so far as I am aware of, nor is the exact time of its introduction into Britain recorded by any one that I know of. More than likely it was brought here from some of the warmer countries of Europe, into which quarter of the globe it is supposed to have been introduced from Egypt or Syria. Although cultivated in India and China, there is no evidence to show that it is a native of these countries. In Japan it is cultivated more plentifully, no doubt, on account of the climate being more moderate and suitable to its nature. Judging from the extent to which it suffers from drought and frosts in this country, there is reason to conclude that it is not a native of either an arid or a very cold country.

The common field Pea seems to have been introduced into this country at a very early period, for it is recorded that an English army, while besieging a fortress in Scotland in the twelfth century, having exhausted their supply of food, subsisted on the Peas and Beans which were growing in the district. The finer or garden varieties were not cultivated in England till a much later period, for they were considered a great luxury in the time of Queen Elizabeth, and were brought to the royal table from Holland. In the reign of Henry VIII. they became so common as to be hawked in the streets of London.

The Pea has long been one of the most esteemed vegetables, and a reference to seedsmen's lists shows that its varieties are very numerous. They naturally divide themselves into three sections—the earliest, second early, and late or main crop varieties. The earliest are generally much more dwarf and slender in growth, and are more hardy than the others. The late varieties are more robust and tall; and though more tender, are much finer and more prolific, so that green Peas are best when within the reach of nearly all classes. But the rich can now in many cases, by the aid of forcing and Orchard houses, prolong the Pea season from May to November, there being now some very compact-growing varieties suitable for pot culture and growth in glass-houses, such as Orchard-houses.

The two methods by which the earliest crop of Peas are produced outdoors are sufficiently distinct, both in their details and results, to warrant their being both treated of. The one way is, to sow in autumn, from the middle of October till the end of November. The other is,

to sow under glass at the beginning of the year, and to transplant about the end of February or early in March.

A sheltered dry rich border should be chosen for autumn sowing. It should have a south exposure, and if closely sheltered from the north by a high wall, and protection from east winds, with their withering effect upon vegetation, all the better. If the ground has been heavily manured for a previous crop, and is naturally good, it will not be necessary to add more manure for the Pea crop; but if otherwise, a moderate dressing of well-decayed manure will be necessary—and, under either circumstance, trench it 2 feet deep. The Peas are best sown as the operation of trenching is proceeded with, so that all trampling on the ground can be avoided. The earliest sorts seldom exceed 4 to 5 feet in height, and 4 to 5 feet is sufficient space between the rows. Dryness and warmth of soil are always important conditions in raising early crops. It is therefore not advisable to draw deep drills in the level border for the reception of the seed, but, on the contrary, is better to sow near the surface, and with a rake to draw a ridge over the drills, so that the covering amounts to 3 or 4 inches of well-pulverised mould.

Mice, sparrows, and slugs are the great enemies of this crop, and a sharp look-out must be kept on all three. A good old plan is to put a covering of chopped whin or furze over the Peas before covering with soil. This makes it rather an uncomfortable run for mice to work in. But probably, the more effectual way is to poison and trap with perseverance. To keep sparrows at a distance is not an easy matter; a good way is to fix a stake at each end of every row, and to fix along near the surface of the ridge a piece of string with feathers strung on it. If not closely watched when coming through the ground, the crop may be completely destroyed in a very short time by sparrows where these pests are plentiful. Hot lime night and morning in mild weather is the best destroyer of slugs, short of hand-picking early in the morning.

When they appear above ground, and severe weather is expected, a little of the finest of the soil may be carefully drawn over them, or a little leaf-mould or dry soil can be laid over them instead, especially where the ground is of a heavy character. As soon as they are an inch or two above ground, they are best staked at once, as the stakes shelter them from cutting winds and frosts, and help to keep birds from meddling with them, and their progress will be more rapid than if left longer before being staked.

If sown in October, and with ordinary spring weather, they are ready for table by the end of May in most parts of England. In Scotland they are in most localities three weeks later.

By the end of February, or early in March, a row of early Spinach sown between the rows of Peas comes in early and useful. A few rows of Radishes may also be sown after the Peas are staked. After the crop of Peas is gathered, there is time for getting the ground manured and dug, and planted with a crop of Cauliflower, to come in by the end of October and November. In England I have frequently followed the early Peas with a crop of French Beans ; but in Scotland most places are too cold and late to afford time for French Beans after Peas. But Lettuces and Endive for lifting and putting into frames for winter supply can be had after early Peas, on a warm exposure.

Sowing in pots and boxes, and transplanting from them to the open ground when the Peas are 3 and 4 inches high, I consider preferable to the plan of sowing in the open ground in autumn, and have always found that, putting one thing against another, early sowing and transplanting is attended with least labour and anxiety, and yields a more regular and better crop.

The method sometimes adopted of waiting till far on in February, and then sowing in stove-heat to make up for lost time, is not to be recommended. The way that is attended with the most substantial results, where a large border of early Peas is required, is to get ready a quantity of open rather dry soil early in January. Equal parts of loam and leaf-mould are the best. The necessary quantity of boxes, 4 inches deep, is filled with the soil (after passing it through a $\frac{3}{4}$ -inch sieve) to within $1\frac{1}{2}$ inch of the top of the boxes, leaving an even rather firm surface. Sow the Peas, after being soaked twelve hours in water, just thick enough to allow each Pea to lie on the surface without touching each other. Then cover with the same soil made a little finer, and place the boxes in a house or pit with just a little more than greenhouse temperature. No water is given till after the Peas are through the soil. The young Peas come through far more regularly when first soaked and covered with rather dry soil. If sown in the ordinary way and watered, the surface is caked and clotted, and the young seedlings raise it before them instead of coming nicely and regularly through it.

Air is freely given as soon as ever they are through the ground. I have found that managed thus, they often do not require any water till they were transplanted about the end of February, when they are found hardy and strong, and being dry, they come out of the boxes without losing a root. Of course, they should be well hardened-off before planting out.

When short of boxes, they may be sown in drain-tiles or stripes of turf, or even in small pots. In the latter case, which is a very good way, they are planted, without breaking the balls, about 6 inches, pot

from pot, in the row, and they soon spread into the stakes and lose the patchy appearance. They probably receive less of a check in this way than by any other, but it is more troublesome than the box method.

In transplanting, the working of the soil goes on as directed for sowing the seed in open borders. The little trench for receiving the row of Peas should be 8 or 9 inches deep, so that the roots of the Peas can be let naturally down into the soil, instead of being huddled together near the surface. In heavy soils, it is worth while to mix up as much loam and leaf-mould, in equal proportions, as will well cover the roots when planted. They start away more freely than when adhesive cold soil is placed next the roots. The staking should be done immediately after planting, for the reasons already assigned. Managed thus, I have always found the early Pea crop much more satisfactory than when sown in autumn, and they stand a deal of frost when raised hardy. This comparatively cool system of sowing early in January, and forwarding them to be ready for planting by the end of February, is available in the case of all those who have a corner in a greenhouse or pit to spare, where a very little space is sufficient to forward enough to plant a few rows for an early crop. It will not be too thick to plant three plants to the inch in the rows, as very thin crops of early Peas are not satisfactory.

That there should not be any chance of a gap in the gathering of Peas daily, a few boxes of the earliest, over and above what are required for a south-border planting, should be planted in an open quarter to form a succession to those sown on the border, and, at the same time, a planting of a second early variety, raised at the same time and in the same way, to be ready for gathering between the early crop and second early sown in the open quarters, which latter should always be sown as soon as weather will allow after the 1st of February, after which a sowing should be put in every ten days till the end of June.

Although not an advocate for thick sowing, at the same time, in the case of tall strong growing sorts, a medium between the thick-sowing system and that of dropping the seed about 2 inches asunder is the surest way of getting a really good row of Peas. With regard to the distance between the rows, a safe rule is to sow those that grow 4 feet high at 4 feet apart; those that grow 6 feet and 7 feet, at 6 feet and 7 feet apart. Rich strong soils, where Peas generally grow strong and tall, may be allowed 1 foot more with advantage. These distances are applicable where no other crop beside a row of Spinach or Lettuce is grown between the rows. A good plan in dry situations is to sow wider, from 9 to 12 feet, and crop in between with Cauliflower,

Brussel Sprouts, or other winter Greens. The partial shade afforded by the Peas in dry seasons is beneficial for Cauliflowers especially. A row of Peas is often sown between the Celery beds with advantage, especially to early Celery in dry seasons.

The best crops of Peas are generally grown on a deep rather strong loam, resting on a cool but well-drained subsoil. The finest Peas I ever grew were on a heavy clay, a large proportion of which was burned and mixed with the original soil. In dry summers, deep well-trenched soil has always the advantage for the growth of Peas, and indeed all vegetables, over that which is merely dug, no matter how rich it is. If the ground intended for Peas has been well manured for the previous crop, it may not be necessary to manure heavily for the Pea crop, unless for the two or three latest sowings, which, owing to the heat and dryness of their growing season, require more stimulation; and in shallow poor land it is a good plan to form a trench with some rotten manure in it, as is practised for single rows of Celery. The usual succession is to follow root crops, such as Parsnips, Beet, &c., with Peas, and it may be regarded as a good rotation.

In very dry seasons, watering is often resorted to with the view of preventing mildew. The best way is to give a few good soakings of manure-water, and mulch with half-decayed manure. Frequent watering cools the soil, and it is better to prevent evaporation by a mulching than to water more frequently.

Where Pea-sticks are not easily got, as in the case of villa gardens, I would recommend the adoption of a plan I once saw practised by an amateur, which is, to drive in stakes along the sides of the rows, and fix tightly to the stakes common sheep-netting, one width of which is sufficient for the dwarfer sorts; and in small gardens it is questionable practice to grow the tall varieties. These nets are an excellent substitute for stakes, are not so unsightly, and, as they last several years, are not more expensive.

For a regular succession of Peas, it is not necessary to grow many sorts, and the following are all good kinds in their respective classes:—

Early.—Ringleader, Sangster's No. 1, Dilliston's Early Prolific, Emperor.

Second Early.—Advancer, Laxton's Prolific, Early Frame, Prize-taker.

General Crop.—Veitch's Perfection, Champion of England, Harrison's Glory, Jey's Conqueror, Waterloo.

Late Crop.—General Wyndham, Lynn's Marrow.

PEAR SCALE.

ALL old gardens, and particularly the one in question, are often infested with insects of various sorts. The Pear scale has reigned predominant here on the wall-trees apparently for a considerable number of years. It made one sorry to look at what once had been one of the features of these gardens—the beautiful trained trees—going limb by limb with a complete investiture of scale, which, like John Brown's ghost, still kept marching on. To put a stop to their triumphant march, I had before me a large field to experiment upon; and knowing from previous practice what would kill both insects and trees, I endeavoured to steer clear of that rock, at the same time I knew that a desperate case required a desperate cure.

Before trying any of the new insecticides, I made a very strong brewing of soft soap and salt, applied it to the trees as hot as possible, and with much force, from the garden-engine, until it lathered against the walls; and for some time the walls acted as a very good barometer, prognosticating the change of weather. I believe this application of brine killed many of the more tender insects which generally harbour about old garden-walls, for during summer the trees were unusually free from the leaf-maggot. As the brine fell to the ground, I have no doubt but many of the insects were killed which secrete themselves under the surface of the soil along the bottom of the walls; at all events, after a time I could plainly see that the dressing had no effect upon the Pear scale. But not to be beat with so many insecticides in the market, I returned to the charge, trying half a tree with one sort and the other half with another sort; but, good or useful as I know those insecticides to be upon tender insects, I failed to perceive that they had any killing effect on the Pear scale, so close do they adhere to the branches.

Being again foiled in my object of eradicating the scale, and knowing the deadly effect of oils upon vegetation as a wholesale killer, I was loath to try them; but paraffin-oil I never had tried. Train-oil I have used for Peaches and Vines when in a dormant state—say, a pint of train-oil (not a Scotch pint) to 5 gallons of soft water, with a good handful of sulphur, adding a little soft soap, stirring all well together, makes a quick and safe dressing for ordinary purposes. The object for using soft water is simply this, that train-oil will not mix with hard water. This dressing can be applied to the trees with the syringe or the garden-engine, keeping it well stirred during its application to hold the sulphur in suspension. This dressing I have used without any deleterious effect to the trees, further than making them feel a little greasy, but this wore off in time with the general syringing, and

greatly prevents the quick travel of the Peach scale ; but, like the others, it is too weak to combat the Pear scale.

On a small scale I tried, by way of experiment, on the strong branches of an old tree which was very badly infested with scale, both train-oil and paraffin-oil, not mixed, but separate. Both did its work effectually in killing the scale ; and, to my great surprise, in a few days the paraffin-oil had completely evaporated, and left the remains of the dead scale quite loose to be blown off or washed off with the elements, while the branches done with the train-oil remain until this day as if polished on purpose. Finding myself safe to a certain extent after my discovery with the paraffin-oil, I had the affected trees dressed wholesale, and I continued dressing them in the spring until the buds were $\frac{1}{2}$ an inch long, without doing any injury, although I would recommend the trees to be done properly while in a dormant state, applying the paraffin just as it is bought with a painters' brush ; and, singular to remark, on those branches which were worst incrustated with the scale, when set at liberty, as it were, by the dressing of paraffin-oil, the bark less or more cracked, and pushed out breastward from what I believe to be quite dormant branches ; and I may also state that the fresh foliage was remarkably beautiful.

J. MILLER.

WORKSOP MANOR.



THE EDUCATION OF GARDENERS.

SIR,—A vast amount of misunderstanding prevails respecting the object which the Society of Arts has in view in getting up examinations on horticulture ; and with your permission I shall endeavour to put the matter in a clear and fair light, and thereby do simple justice to a good cause.

The prizes and certificates which the Society of Arts offers are intended to stimulate young men to think, to become acquainted with principles, and in the end to deserve the name not of mere workmen, but of *skilled* workmen who have some knowledge of the laws of nature. It is taken for granted that the capacity for *doing* is looked after elsewhere, and by every employer and superior ; and it certainly is, for no one need expect promotion in Adam's business whose hands are not as expert in executing as his head is in comprehending. Trials in digging and suchlike are carried on every day, Sunday excepted ; and any one south of the Tweed, and calling aloud for the spade and rake, who disbelieves this doctrine, has only to cross over for a while in order to find out his mistake. The practical test is constantly in operation, and has been for centuries, but the theoretical test is a new

thing ; and the rising generation, if it is wise, need not wonder to find those belonging to a previous generation laughing at what they are not in sympathy with, and cannot understand. I do not wish to cast any slight on years, be they few or many, for it is quite certain that there are hoary-headed sages completely abreast of every new matter belonging to their own favourite department of knowledge ; but nothing should be accepted without a reason from any one, and statements are worthy of approval only in so far as they express truths. I often wonder who those are who joke about certificates ; and until the names of a few are served up in print, no notice should be taken of inferences drawn from premises perhaps without a foundation. Doubtless there are plenty of cunning but ignorant fellows who hold good posts, and who generally promote in proportion as the sponge is used, or sometimes as their wives suggest, but they are not likely to show themselves before the public. And also it is certain that stupidity can adorn a shovel or a hoe, but intellectual training alone can give any one that power for classifying details, and that nicety of discrimination, which lead to a proper distribution of duties, and to the right subordinate getting into the right place. It is but too well known that in gardening, as in most other things, advancement is not always and instantly in proportion to merit ; but I hope no one will be discouraged by this, for I have a strong faith in knowledge rightly used, and belonging to an upright character, meeting with a suitable reward somewhere ; for if one rank is closed, other ranks are open. It seems to me intolerable, in a world full of real work requiring to be done, to find people engaged in trying to destroy a thing good, if not perfect ; and this is pretty much the case with those who attach hard names to what the Society of Arts is endeavouring to perform ; for, in so far as I am aware, not one of the detractors has yet suggested any improvement on the method of procedure employed by that useful body. To pull down without any capacity for building up again—to be a spoliator and nothing more—seems to me to be one of the most thankless tasks on the face of the earth. The being whose business lies in such a channel is an object of pity rather than of envy. A good deal, too, has been written about *grinding*, but, as applied to gardeners, I hardly know what either it or the term *cramming* means. A young man, who works twelve hours per day, has surely time enough for reflection over the few facts he is able to acquire in the short space he can call his own.

And then on the subject of apprentice fees, as having a bearing on the gardener's financial interests rather than on his education, I may say at once that I classify myself with those who go against payment in that way. I call the taking or demanding a premium, in the

majority of cases, and as matters are at present arranged, very unfair ; for surely it is not just for poor Tom Jones, whose father is a labourer in a rural district, to have to pay ten guineas to get the garden-doors opened to him, whilst all the Browns, who live near a large town with plenty of market-gardens, get everything opened, and yet give nothing. Also instruction and encouragement are often promised, and fine bright prospects are implied, if not held out ; but, alas ! how seldom they come ! Another thing that makes the fees unjust, and throws the whole business beyond the pale of political economy, and into that of monopoly, is the foul play that prevails in the market. O, Father Adam ! what a terrible job there would be if the appointments of your representatives in the latter part of the nineteenth century were always chronicled and looked into as those of Mr Gladstone are !

J. D.



NEW PLANTS OF THE PAST MONTH.

So finely developed was a grand specimen of the glorious *Vanda cœrulea*, sent from Lord Londesborough's, Grimston Park, Tadcaster, by Mr Downing, to the meeting of the Royal Horticultural Society, on October 19th, that it may well occupy the leading position in the list of new plants of the month, though in itself not strictly new. In fact, three plants were sent from Grimston Park, and the largest was a superb specimen of high cultivation, the plant-stalk being feathered with healthy foliage to its very base ; and it had three spikes of flowers, on which were forty-eight expanded blooms and one unexpanded bud. Another specimen had twenty-three full-bloomed flowers, and the third specimen eight. Mr Thomson has also just flowered a noble specimen at Dalkeith, and in that place, so full of interest for visitors, it was one of the most interesting features. Mr Thomson's plant, though not so tall as the largest specimen from Grimston Park, and scarcely so well furnished, though quite as healthy, had two spikes of flowers—one with twenty-three expanded flowers and four unexpanded buds, the other with twenty-one expanded flowers and four unexpanded buds. It will be seen that the Dalkeith specimen had an aggregate of fifty-two flowers. It is said to be a plant difficult of cultivation, and does best in the corner of a house facing the north-east, in which position it can obtain plenty of light. In the records of his 'Himalayan Journey,' Dr Hooker describes the beauty of these plants as seen on the dry grassy hills on the Himalayan range, some 3000 or 4000 feet above the sea-level. The

Floral Committee recommended Lord Londesborough's specimen as worthy the award of the Lindley medal.

But to the record of new plants. In the way of Orchids, a first-class certificate has been awarded to a variety of *Odontoglossum* Rossi, named *Warneri*, a larger form than *O. Rossi*, having pale sepals spotted with dark, white petals, and yellow crest. This was exhibited by Mr Wilson, gardener to W. Marshall, Esq., Clay Hill, Enfield. From Mr Lawrence, gardener to the Bishop of Winchester, Farnham Castle, came a curious species of *Gongora*, from Rio Negro, of a rosy-slate colour, delicately barred and spotted with chocolate. From the Royal Horticultural Society's garden came a pan of *Pleione Wallichiana*, covered with beautiful flowers, to which a special certificate was awarded. It contained thirty-four expanded flowers of fine development. Mr Bateman stated in regard to the *Pleione*, and with reference to the culture of these plants, that they liked damp and heat during the growing season, and the reverse conditions during the period of rest, which in their native habitats occurs during the dry season.

A very handsome and novel form of the Lady-Fern, named *Athyrium Filix-fœmina*, var. *Elizabethæ*, was exhibited by Mr Thomas Moore, Botanic Gardens, Chelsea, and awarded a first-class certificate. It was curious for its dwarf growth and the singular formation of the fronds. Mr Moore said he had brought this specimen to show what can be produced from the Lady-Fern by seed.

From Messrs Standish & Co. came a flowering plant of the Ascot Yellow Perpetual Picotee, to show its excellent habit and freedom of bloom. It is a fine variety, the flowers yellow laced with brilliant red.

To the Fruit Committee came a few things well worthy a passing notice. Mr John Richards, gardener to E. J. Coleman, Esq., Stoke Park, Slough, brought three magnificent fruits of the smooth Cayenne Pine, so regular and symmetrical in shape that they appeared to have been cast in a mould; they were also finely ripened. The aggregate weight of the three fruits was over 24 lb. Another feature was a very curious and interesting sport from the Citronelle Grape, sent by W. Looke, Esq. of Melksham, Wilts. "This resembled, in its peculiarity of colouring, the old Aleppo or variegated Chasselas, some of the branches being produced black, some green; others with one-half or a few berries green, and the rest black; some striped, or one half of the berry green and the other black—altogether presenting a singular appearance. The flavour of these berries did not differ from the Citronelle, which is a small white Chasselas, with a pleasant Sweet-water flavour." Such was Mr A. F. Barron's report of this novel

occurrence. Equally interesting was a fruit of the Avocado Pear (*Persea gratissima*) exhibited by Mr J. Carr, gardener to P. L. Hinds, Esq., Byfleet, Surrey. It is a tropical fruit from the West Indies, and this is the first time the fruit has been ripened in this country. The fruit was of the size of a small Melon, oval in shape; the skin deep green, coloured a little on one side, and spotted with dull red all over. The flesh, which is about an inch in thickness, is of a soft pasty character, and of a pale yellow colour, covering one large seed in a kernel, like a Plum. As a dessert fruit it is considered uneatable. It is sometimes called the Alligator Pear, or Midshipman's Butter. The fruit is produced by a large, bold-foliaged shrub, which grows from 20 to 30 feet in height in its native habitat. The plant has long been in cultivation in this country, and has flowered both at the Duke of Northumberland's, Syon House, and at Kew. A first-class certificate was awarded to a compact-growing dwarf red Beet, marked No. 2, from Messrs Veitch & Sons.

R. D.



HINTS FOR AMATEURS.—DECEMBER.

WE may expect soon to receive the usual seed-catalogues, reminding us that we will have to consider our wants for the coming season; and where economy is an object (and it should be in every garden), all seeds which were left over from the past season's supply should be examined, and a note taken of the quantities that are sound and good; and if any doubts arise as to their quality, they can easily be proved by sowing a small pinch in pots among a little light soil of any kind, numbering them, watering and placing in a little heat, where they will soon germinate, and their value can be ascertained. This practice among nurserymen is becoming almost general, as it is to their loss to supply seeds that are unfit for use. It is more difficult to get seeds true to name than of good quality. We like to give a fair price for seeds, and from experience have a wholesome dread of those sold at almost a nominal sum. When seeds arrive, they should be kept free from damp and drying heat. The seed-list should be made out and sent in early, to give as little extra trouble as possible to the seedsman; so much has to be done in the seed-shop during the next few months, so many buyers requiring all their orders at the same time. We generally give a few novelties a trial, but limit the quantities; and it sometimes turns out that the "new kinds" offered have been well known to us for years, especially with Peas, Cabbage, Onions, Broccoli, and Potatoes. However, we often meet with kinds that are quite new

to us, and of excellent quality ; and some turn up under a new name which have almost become extinct in their true character. To do justice to seeds, there should be every attention given to thoroughly preparing the soil in winter, so that a fine dry open surface may be secured at sowing-time.

While manuring, trenching, and otherwise preparing the ground at this season, arrangements should be made as to what the plots are to be occupied with, changing the crops as frequently as possible, and either giving good or limited supplies of manure. Ground for Leeks, all the Brassica tribe, Asparagus, and other gross-feeding plants, may have the heaviest supplies of the rankest manure ; and for roots—such as Carrots, Parsnips, and Beet—a deep soil moderately manured with thoroughly rotten material is desirable, otherwise forked and coarse produce may be expected. Celery-ground well trenched makes a good preparation for Onions ; Strawberry ground trenched down does well for Cabbage, Cauliflower, or anything subject to “clubbing.” However, if the Strawberries have been long on the space, a good coating of manure may have to be dug into the surface after the ridges or rough surface is broken down. Snow should never be dug down, except on hot gravelly ground where cooling and moisture might be an advantage. In severe weather, compost might be turned over, prunings charred, along with leaves or other rough material, to form manure to be used soon. Pea-stakes may now be secured and made, and Onions looked over. When wet overhead, all roots and other stores may be examined, as some may be decaying. Wheel on manure in frosty weather, leaving it in ridges covered over with soil till wanted ; and as soon as all prunings, leaves, and other rubbish are cleared off, a good dressing of manure may be given to fruit-bushes, to be dug or forked into the surface where required, not disturbing the roots. This is not necessary, however, for vigorous young bushes which have been planted in well-prepared ground ; but keeping the roots near the surface is a great object, and mulching helps this more than anything. Rhubarb and Seakale crowns may be covered over with soil, coal-ashes, or litter, to afford a little protection. Roots of these for forcing may now be lifted and placed in heat. A cellar often does well. An outhouse, or anywhere that the temperature can be kept from 55° to 60°, will bring them on gradually ; but 20° higher would bring them on quickly, but more weakly in growth. Seakale requires to be kept close and free from air to blanch it. A number of roots placed in pots among light earth, leaving the crowns at the surface, and taken into warmth and darkness, answers for small supplies. Covering with warm manure placed over pots is still practised, and answers well. The trimmings of Seakale-roots should be kept for next season’s planting.

Rhubarb may be treated in every way the same as Seakale, but it does well with light and air. Mitchell's Early Red and Prince Albert are easily excited, and can be brought on very quickly. With these two for first and second, we can with little trouble get a supply in by the end of December, and after that time Victoria is brought in. The mushroom-house answers well for all forcing of roots except Asparagus, which is easily forced in a mild dung-frame. The roots placed over the surface, packing the crowns closely together, spreading out the roots, and covering with a few inches of soil, will answer well. Watering with tepid water is necessary, but not to make the soil sodden. Give air when growth appears. Blanched Asparagus is a poor dish. The tops should be green and tender, and used when the stalks are from 4 to 6 inches long. Where dung is used for forcing anything, heat-sticks should be used to know what the temperature is. Drawing them out, and trying them with the hand, will easily show if there is danger to vegetable life; and if too hot, holes should be made to let the heat escape. Mushroom-beds may be made as required. Droppings from the stable, with some straw in them, answer well. Slake it over, mixing the whole well together. Leave it in a heap to heat; but if left any length of time, burning would take place, and render the dung useless. When making the bed, let it be thoroughly beaten down to make it as firm as possible—1 foot thick will answer well. Let it heat, and if burning is likely to occur, make holes all over the bed; and when at a temperature of 75° to 85° , let the spawn be placed all over about 9 inches or 1 foot apart, and 2 inches below the surface. Pieces like walnuts, or larger, are generally used. If the spawn is good, the Mushrooms will appear in the course of from five to eight weeks. About a week after spawning, 2 inches of good earth may be placed over the dung, finishing it off smoothly and firmly. Watering is seldom necessary till the Mushrooms appear above the surface, and then only enough should be given to moisten through the surface-soil. 55° to 60° is the temperature generally allowed. Walcheren Broccoli and Granger's Autumn will be supplying heads now. They should be looked over frequently, and taken before frost destroys them. If large quantities turn in, they might be lifted with balls of earth and placed in a shed or outhouse, where they can be protected till used. Salads under protection, such as Lettuce and Endive, should be well looked after. Those in frames require plenty of fresh air, clean, well-stirred surfaces, and no water, except when absolutely necessary. Chicory lifted, trimmed, and placed in heat to blanch like Seakale, will soon give a plentiful supply. This is considered by some as one of the most wholesome of Salads. Keep up supplies of Cress, Mustard, and young Onions, by frequent sowings, keeping them cool and airy before they are used, which adds to their flavour. Peas and

Beans coming through the soil should be protected. Stake them at once, and place evergreen branches among them. When the weather is severe, coal-ashes sprinkled over them is useful in keeping off slugs. Celery should be protected from frost with litter, but the covering should be taken off whenever thaw sets in, as rotting would soon take place. Earth up (but not to bury the leaves) all late crops requiring it.

There should now be no delay in getting fruit-trees planted which still remain to be done. Those already planted (if standards) should be well secured to stakes, but not tying so that the bark may be injured, but using old cloth, leather, or straw-bands under the ties. Let mulching be placed over the roots before any injury from frost is sustained. Those on walls should not receive their permanent fastenings, as the newly-planted roots may subside with the soil, and serious injury to the bark by the ties might be the result. All established trees on walls and fences may be nailed as soon as they are pruned. Let the shoots be placed as regular and close to the wall as possible. If shreds are used, let plenty of space be left for the branches to grow. Strings should not be tied so that they will cut the wood, as cankering would then show itself. We seldom use shreds, because of their unsightly appearance, and the harbour afforded for insects. There is also great objection to pulling out and replacing nails every season, destroying walls and making nests for vermin. When tying is practised, the same nails may last for years by cutting away the shoot not required, and tying its successor in the same place to the old nails. If all the leaves have not fallen from Peaches and Apricots, the trees should have a new soft broom swept over them. Any lateral growths still remaining should be cut off, as anything that would tend to keep the wood soft and green is very objectionable both to the health of the trees and the crop for next season. Apricots and Peaches should have the young bearing-wood unfastened from the walls, so that they will be free to the action of the air all round to harden them. Many experienced cultivators keep the young shoots off the walls as long as possible in spring, so that they are not prematurely excited to receive a check later in the season. Much of the failure of last season's fruit can be attributed to the warm weather in February bringing out the blossoms, to be checked by the cold frosty weather in April. If the shoots had been free from the walls, less injury would have been sustained, as the flower-buds would not have been so forward; however, as we never had finer crops of all kinds of fruits, Apricots excepted, we are less qualified to speak on the failure than others. Pears are often a failure, both in crop and quality, from having their spurs extended far from the walls, and the whole surface of the wall entirely covered. The spurs should proceed from the sides

of the branches, and be kept short, and when they are likely to crowd one another they should be thinned out. A number of old trees we treated in this way last year, and tied the old spurs back to the wall, where they did not break off. The fruit was much finer in size, more of it, and the quality vastly improved. A mixture of soft-soap, clay, and tobacco-water, made like paint, may be applied with a brush to trees which have been infested with scale ; scraping clean with a blunt instrument before the application is put on, makes way for its destructive effects on the vermin. Gishurst's compound and Clarke's insect-destroyer are excellent for cleansing deciduous trees from insects.

Roses should now be planted in open weather, first preparing the ground by deep trenching and manuring, using fresh loam and decayed leaf-mould next the roots at planting-time, finishing with mulching to be dug in in spring. Reynolds Hole's excellent papers on the Rose are still so fresh on our minds that nothing needs to be said about them further than a "reminder." Let tender kinds be lifted, and laid in by the roots, where they will be safe from frost. When to be grown for exhibition, Roses should be kept away from the general stock, and suitable kinds planted, to receive extra attention, with manure, watering, &c. ; so said the late Mr Bicham of Hedenham, when we were admiring beds of extra strong and healthy plants separated from his immense nursery stock. Protect half-hardy shrubs, such as Myrtles and Fuchsias, which are to remain in the ground all the winter. Coal-ashes over the roots, and hay-band fastenings over dry straw or fern, answer well. Bulbs under cover require timely attention, so that they may be taken out before they grow and become blanched. Keep them cool and free from frost. A few may be brought on in a frame to flower early ; a temperature of 55° will bring them on strongly. Roman Hyacinths are now in flower, and valuable little flowers they are for rooms, &c. Bedding plants require very little water now, but give it in a tepid state, and enough to reach all the roots. Cinerarias which have plenty of roots may now be assisted with manure-water. Give air plentifully in mild weather to them and Primulas.

M. T.



PEACH CROP OF 1869.

SIR,—The interesting remarks on this subject by your correspondent, Wm. Chisholm, in last month's 'Gardener,' will be interesting to all fruit-growers, but more especially to those who have had this year to make up their dessert without a dish of fine Peaches. Without a doubt, there is truth in what he says, about retarding the blooming of

the Peach till there is less likelihood of a continuance of cold weather, such as we had this spring after the trees were in bloom. And his experiment goes far to prove the truth of what he says. The difficulty is, how is the desired end best to be effected, at the least expense, and with the least labour? Many winters may pass over our heads ere we see such another February, and followed by such a March.

And it would certainly be very provoking for one to put up a screen of double, or even single, mats (on a large or small scale), and after having secured them against wind, &c. (no easy matter on some exposures), to find that in three years out of four they would not be required to hide "nature from nature's sun." And, worse still, it might be found that to allow such protection to remain (except applied at a greater distance than 2 feet) would be to hasten what it was intended to retard. If dull close sort of weather occurred instead of the dreaded sunshine, which is just as likely, I am afraid the protection, unless removed, would do more harm than good. What we want is protection that can be removed and replaced when required (for either bright sun or frosts) in as short time as possible. The custom of fixing canvas or netting over Peaches, &c., *permanently*, from the time they came into bloom till the end of April or middle of May, has long been practised, and, no doubt, it is very essential in its way, especially in the north of England, in all low-lying places, and in Scotland. But it would be of more value could they remove it when not required; for whatever is thick enough to throw off four or five degrees of frost must deprive the trees, when expanding into leaf, of light and air, so necessary to their wellbeing. On arriving here (in a rather bleak corner of Northumberland) last February, my employer expressed a desire that some plan should be got for the easy removal and replacing of the canvas, which, in former years, had always been immovable, for the time, much against his will. The desired plan was produced, and 80 feet of a south aspect wall done as an experiment. The result was, that one man could cover or uncover this 80 feet of wall in the short space of four minutes, and bright suns could be kept off as well as the late spring frosts. The few Peaches we have here had a fair crop on them, and the crop of Apricots was all that could be desired. But I don't mean to say that the protection saved them; on the contrary, I must confess that a branch extending beyond the canvas had as good a crop as any other part of the tree. But because of this single instance, I think it would be rash to say the thing is useless till further trial is made. With the permission of the Editor, I shall in another number give a short sketch of our mode of protection, hoping that others may try the same, or something better on the same principle.

R. I., G. P.

NOTES ON HARDY HERBACEOUS PLANTS.

Cyclamen—‘*Sowbread*.’—There is perhaps no more attractive group in the whole range of Alpine plants than that comprised in this genus. They are all neat and dwarf in habit ; all have foliage of pretty form ; and the flowers, in every case beautiful, are in some exquisitely so. They are mostly spring-blooming plants, so early, indeed, that in our fitful climate their beauties are rarely enjoyed out of doors ; but cultivated in pots they are well adapted for the decoration of rooms, the conservatory, or greenhouse ; and for choice cut flowers, the fine colours, peculiar and beautiful form, and, in the case of some sorts, the delicate fragrance they possess, render them charming. Their culture is simple enough when their nature and requirements are understood and attended to. With the exception of *C. persicum* and its hybrids and varieties, and perhaps also *C. repandum*, the remaining species may be considered hardy Alpine plants. For the most part, the species inhabit high cold regions on the great mountains of southern Europe, and their constitution is consequently adapted to resist the greatest cold they will be exposed to in our climate ; but when winter is gone, and we are looking forward with expectation for the unfolding of their beauties, along with the lengthening days of March and April, the late frosts and battering rains so common in these months bring disaster to *Cyclamen* flowers, as they do to the flowers of many more important things. Something may be done to protect them, with hoods or extinguishers of *frigi domo*, so made as to be easily slipped over and fastened upon stakes permanently fixed around the plants, in anticipation of inclement weather ; but it is troublesome and unsatisfactory, inasmuch as we are often taken at unawares by the sudden changes experienced in the spring months. It is necessary, therefore, if we would fully enjoy the beauty of the early-flowering *Cyclamens*, to provide them with indoor accommodation of some sort. It is one of the recommendations of these plants that they do not take up much room in winter ; many may be stored in small space. A cold frame in which the pots may be plunged in coal-ashes is the most suitable place for them ; but in the absence of that, they may be stored under the stage of a cool greenhouse, or in a vinery or peach-house, in which, if not provided with heating apparatus, the roots would require to be protected by some means in severe weather. Hand-glasses and cloches are fit enough also for wintering a few plants, and they may even be successfully flowered in such ; but nothing could be better for the cultivation of these and kindred plants all the year round than those cheap ground vineries ; they are specially commendable to amateurs for such purposes.

The only successful means of propagating these plants is by seeds. Division of the root-stock has been recommended, and may be practised, but the result is bad ; solid corms, like those of *Cyclamen*, when divided, never produce vigorous healthy plants. The seeds, if early ripened, may, in the southern parts of the country, be sown at once thinly in shallow pans, and placed on a spent hotbed, cold frame, or on the shelf of a greenhouse near the glass, attending properly to watering, and, after the plants appear, to shading from direct sunlight. In the north, however, where the season is short and the ripening of the seeds later, it is better to defer sowing till February or March. About that time a mild hotbed should be in readiness to receive them, in which the temperature should range not higher than 60°, nor lower than 50°, but be kept pretty steadily between the two. The compost in which to sow is of some importance, as the plants will remain in it undisturbed for the next seven or eight months ; and as a vigorous infancy lays the foundation for a successful maturity, a little pains at this first stage will prevent after-disappointment. Equal parts fibrous loam and peat, and about a fourth part of two or three year old sheep or cow dung, with a very liberal allowance of sharp sand, form a compost in which *Cyclamens* delight. The whole must be carefully mixed, and for the seed-pans should be passed through a $\frac{3}{4}$ -inch sieve once or twice, and a small portion for the purpose of covering should be sifted finer ; but for established plants, the compost need not be sifted, but merely rubbed, and mixed carefully with the hands. Sow, as before said, thinly in shallow well-drained pans, cover lightly, but completely, and place in the hot-bed. Till the plants appear the temperature of the frame is best kept moderately close, and shading should be used to prevent sudden drying of the surface of the soil by the sun ; but when the plants are fairly visible more air will be necessary in order to induce vigorous growth : sudden fluctuations of temperature must, however, be guarded against by all means till the weather becomes less variable and the plants acquire greater strength. From first to last, during the growing period, shade from bright direct sunshine is of the utmost importance to the wellbeing of *Cyclamens*, whether seedling or established ; and careful attention to this item, in the treatment of seedlings especially, cannot be too strongly inculcated. Up till the end of August everything should be done to stimulate rapid and vigorous growth. Admit morning and afternoon sun, and, according to the condition of the external temperature, a free allowance of air early in the day, but shut up with a little extra warmth in the afternoon, re-opening the lights again a little at night throughout the three summer months ; and attend carefully to watering and cleanliness. By the last week in August, the plants under this treatment will have made con-

siderable progress, and attention must now be directed to the maturing of growth before finally setting them to rest. Cautiously inure them to a fuller exposure to light and air, till the lights may be wholly dispensed with ; and be more sparing in the supply of water, but never allow the leaves to flag. The first week in October should find them well matured, and they may then be turned out of the seed-pans, saving the fibres from unnecessary injury in the process, and potted singly into pots suited to the size of the corms, bearing in mind that the first shift should be a small one, and that the pots be well drained. When potted, plunge to the rims of the pots in coal-ashes, and give water sufficient to settle the soil about the roots, after which for the winter they will require little attention except that of giving air when the weather is mild, protection from severe frost, and a vigilant look-out for slugs, which are fond of nibbling the young tender corms. About February or March they will begin to move of their own accord, and if frame-accommodation may not be afforded them, they should be hardened off preparatory to standing out of doors in April or May, and plunged in a bed of coal-ashes in a well-sheltered, partially-shaded situation. One or two shifts may be necessary throughout the summer as the plants increase in size, but the shifts should be small. In October, if the pots are well filled with roots, the plants may receive a final shift and be stored away for the winter in the best manner the available means will allow, and in the following spring they should yield a reward for all this care and trouble in a plentiful crop of flowers.

The treatment for established plants does not consist of many details. Encourage vigorous growth for a couple of months after flowering is finished, remembering always that shade from mid-day sun is essential during this process ; water abundantly, and keep clean, and in the end of September or beginning of October, before putting them away for winter, give a shift if required, but in any case examine the drainage, and repair it if necessary, and throughout the winter see that the roots do not shrivel for want of water. By these means, if carefully applied, ample success is certain. But those whose circumstances do not admit of such expensive and troublesome details should not be discouraged from the cultivation of Cyclamens. A few roots of flowering size of the hardy sorts may be procured and planted in September, in light rich soil, well drained, either on rockwork or in a warm sheltered border ; and when spring comes round, protect the flowers from the inclement weather by the best means at disposal. The autumn-flowering species may be enjoyed with less trouble than those of spring, and do very well planted in the same way, but the cream of the gems is in the spring-flowering sorts. It has to be added that, in planting or potting, the corms of those species, such as *C. persicum*, which are naturally large, should be

inserted to such a depth as will bring their tops about level with the surface of the soil, and those naturally small should be slightly covered over with the soil. Nearly all the spring-flowering sorts will bear a little forcing, and by this means a welcome succession of flower may be kept up throughout the dreary winter months. The *C. persicum* sorts are best for this purpose. They bear extra excitement with less injury than most of the hardier species do.

C. Coum is a diminutive species, but also one of the earliest flowering, and consequently very desirable, though not one of the handsomest. The corms are smaller and smoother than those of the same age of most other species. The leaves are small, round, heart-shaped at the base, and entire on the margin. The corolla is small, bright red or purplish red, and divided into five ovate reflexed lobes. Flowers from February to April. Native of the mountains of the south of Europe at high elevations. *C. C. Album* is a very pretty variety of this species, and, flowering as it does at the same time, is an excellent companion to it. *C. C. carneum* is another interesting variety, with blush-coloured flowers.

C. verum has small corms. Leaves small, round, cordate at the base, and slightly notched at the point, the upper surface zoned with a band of pale green within the margin. The flowers are deep crimson, and appear in March and April. Native of the south of Europe at high elevations.

C. repandum, sometimes called *ficariæfolium*, is one of the best of the smaller-growing species. The corm is small. Leaves roundish, cordate, obscurely lobed, and minutely toothed. Lobes of corolla broadly ovate, bright red at the base, shading off into rose. Flowers in April and May. Greece. Rather a tender species, and very impatient of wet in winter.

C. ibericum, a very beautiful and distinct species. Leaves roundish, heart-shaped, sometimes toothed, often entire, and zoned irregularly with a band of greyish green. The flowers are large, variable in colour in shades of rose and white, but always marked at the base of the lobes, which are sharply lance-shaped, with a dark crimson or purplish crimson blotch. Flowers in March and April. Iberia.

C. persicum, though the tenderest, is one of the best. The corms are large. Leaves large, rather variable in form, but generally broadly ovate, with a deeply cordate base and slightly toothed margin, and more or less zoned irregularly with pale greyish green. Flowers large, dark red or crimson at the base of the lobes, which are white or pinkish white. Flowers in March and April. Cyprus. *C. Coum* hybridised with the pollen of *C. persicum*, by Mr Atkins of Painswick, produced the famous cross named *C. Atkinsii*, which for profusion of bloom, fine

colouring, and amplitude of beautiful leaves, surpasses all *Cyclamens*. It has the neat compact habit of *C. Coum*, with greater luxuriance, and the large flowers of *C. persicum*. It is, however, more correctly a race than a fixed hybrid form that has resulted from this cross, and many of the varieties are beautiful in the extreme, though not very distinct one from another. Other varieties of *C. persicum* are *C. persicum rubrum* and *C. persicum roseum*, both desirable companions to the species.

C. Europæum.—This is a large-growing species with roundish heart-shaped toothed leaves, often zoned on the upper surface with pale green. The flowers vary in colour in different individuals, but in nature the most common colour is white or rose, or both shading into each other, but purple and various shades of red are also met with, and in cultivation there are varieties distinguished by different combinations of these colours. Flowers in August and September. Britain and other parts of Europe.

C. hederifolium is perhaps, from the scientific point of view, not distinct from the last species, but the form usually vended under the name has distinctly angular leaves with a cordate base, and the flowers are lilac shading into rose. Flowers in August and September. South of Europe, usually in company with *C. Europæum*.

C. Neapolitanum is rather a variable species, and sometimes confounded with the two preceding. The leaves are most variable; but most commonly they are of the ivy shape, with a cordate base, and distinctly zoned on the upper surface. The flowers are dark red, shading into pink or pale purplish red at the tips of the lobes of the corolla. Native of Italy.

C. littorale is a little-known species in this country. The corms are small. The leaves are roundish and cordate at the base, and prettily marbled on the upper surface. The flowers are bright rose; the lobes of the corolla short and broad. Flowers in March and April.

W. S.



BOTTOM-HEAT.

It might be reasonably supposed—as was formerly argued by Knight, I think—that plants like the Pine or Melon, for instance, should not require a more stimulating root-temperature than would be communicated to the soil in which they grew from the atmosphere of the hothouse, provided the temperature of the air was at all times properly regulated, seeing that in their native climate the heat of the ground is entirely dependent upon the temperature of the air, or solar radiation; and I conceive that but for our cloudy sky we might dispense altogether with hot-water pipes or other artificial means of supplying bottom-heat to some

kinds of plants, for the successful culture of which such appliances are considered essential. The hot summer through which we have lately passed proved this; and could we have foreseen it, we might have saved ourselves the trouble of providing hotbeds for many things.

For weeks the Pines here may be said to have grown in the open air, for the lights were taken off the pits altogether during the day, and left half off at night; and with great apparent advantage to the plants, though they required a great deal more water at the root. Such summers are, however, not to be depended upon in a general way, and so we have to look to more reliable sources than the fickle presence of Sol for a supply of bottom-heat. Yet though I fully appreciate the importance of maintaining in all cases a root-temperature corresponding to that required for the healthy development of the branches and maturation of the fruit, I think we are sometimes apt to over-estimate its advantages, and that its application is not unfrequently a cause of failure. In speaking of bottom-heat, I of course use the term in its ordinarily understood sense, and refer to the auxiliary appliances generally in use for such purposes.

Considering the reciprocal action which exists between the roots and the branches, it cannot be doubted that when the top and bottom temperatures are out of due proportion with each other the worst effects must follow, as is proved by experience. It would be proper enough to run the temperature of a vinery up 15° or 20° with sun-heat, but no one would think of doing so with fire-heat in a dull day. Yet it is common enough to see the bottom-heat of Pines and Melons maintained steadily at from 90° to 100° for days and weeks together, during which the maximum top temperature may perhaps never exceed 75° or 80°. No doubt it is sometimes difficult to regulate the temperature of the bed as nicely as could be desired when it is composed of fermenting materials, but when pipes are used it may be controlled easily enough, and, as a rule, it should never be allowed to exceed the mean temperature of the house above 2° or 3°, if healthy foliage and fully-swelled, heavy-weighing fruit, either of Pines or Melons, is an object. This, at all events, is according to my short experience. Within certain limits, size is no indication of weight in a Pine, as I have proved over and over again. Hurried fruit always weighs light, and is of inferior flavour. The heaviest Pines, in proportion to the number of pips we have ever cut, were from plants that had never been subjected to higher bottom-heat than 82° or 83°, and that figure we never attempt to go beyond with fire-heat. I saw some time ago, at a horticultural exhibition, a Queen Pine about 2½ lb. weight, which had deservedly received the first prize, though much larger fruit were entered against it; but it was one of the most beautifully-developed fruits I ever saw, and on that account it was awarded the prize. I afterwards found that it had been grown on a bed of leaves, about 2 feet deep, in a pit, and that the plant had not been disturbed for six or eight months.

I must confess to a hankering after the old-fashioned hotbed, in preference to hot-water pipes. Though it entails more labour and inconvenience, there is a virtue about it that the hot chamber does not possess; and in conformity with this predilection, and as we happen to have a good command of leaves, we use them rather extensively. We winter our fruiting Pines in a house heated with hot water above and below, because we can graduate the heat better; and we keep them there until they are about showing fruit, when they are moved into another house where a bed of leaves has been prepared, upon which they are just set but not plunged, the pots being filled up between with rotten leaf-mould, the better to guard against a too-violent heat. When our present fruiting plants were moved into this house in December last, the bottom-heat stood

at 78° at the bottoms of the pots. When the fruit was fairly visible, the temperature of the house was raised 5°, and the temperature of the bed rose gradually to 84°. It has never exceeded this yet, and the earliest plants are now (March 12) out of bloom; the fruit is well above the foliage, robust, and full of promise. The heat of this bed will last for twelve months, and after the fruit is cut off the present lot in June, the succession plants will take their place without any additional fermenting material, and be left till they complete their growth, as we fancy the gradual subsidence of the heat of a leaf-bed more congenial to the perfect maturation of the plants.

It is better, certainly, to have a command of bottom-heat by means of pipes when needful. Still, though I never made the experiment purposely, I have seen sufficient to convince me that, were the plunging beds of pine-stoves always properly insulated, so that the plunging material would not come in contact with the cold outer walls of the house, whereby it is robbed of its heat, Pines and other things might be grown during summer at least without the aid of pipes or fermenting material, as heat sufficient to maintain healthy root-action would be communicated to the soil from the air of the house. In confirmation of what I say, I will relate an instance that came under my notice here within the last twelve months. One of our pine-stoves, an old house, is constructed something on the principle I have hinted at; *i.e.*, the pit inside the house is separated from the outside walls by a sunk path which runs all round it. In November 1867 this pit was filled up with leaves, which were turned over and incorporated with some decayed leaf-mould, the remains of a former hotbed. Cucumbers were grown in the house during winter and spring, and after they were over the bed was levelled down and a lot of succession Pines were plunged in it. By August the Pines were going to rest with a reduced top-heat, and the temperature of the bed stood at 80°; but when the hot weather of September came it rose to 95°, and as it was continuing to rise we had to move the Pines out to cooler quarters, and no farther notice was taken of it at the time. Before returning the Pines to the same house again in December, I however tested the bed, and found the temperature to be 70°, or about 5° higher than the mean top-heat, which at the time was about 65°, pot vines having been in the house for six weeks. When the bed was originally made up more than a year previous, it was only about 2½ feet deep, so that fermentation could not be very active; and no doubt the long-sustained high temperature was due to the insulated position of the bed, for in our ordinary lean-to pits the heat of the beds does not last for half the above period. I have no wish to revive obsolete practices, but were I called upon to erect a range of pine-stoves, I would have the beds enclosed within inner walls; and if a sufficient quantity of leaves was at command to renew the beds partially once a-year, I should not fear the result or grudge the little extra labour entailed, if in the end it would be worth speaking of.

The practice of testing the temperature of hotbeds by means of trial-sticks should be condemned. In experienced hands the plan may be safe, but it is better not to trust to it; and a thermometer should be placed in every bed, and in a position to indicate the temperature of the soil about the roots of the plants. Unless this is attended to, disappointment will often be the result.

The Melon will stand a higher temperature at the root than the Pine, and consequently more exposure to the sun. Under the bright sky of Persia, where Melons are said to attain the greatest perfection, the ground must be heated to a high degree; and as the Melon is a shallow rooter, it must have the full benefit of it. And so we find in forcing that 100° is not too high for its roots in summer, provided the foliage is well exposed to the light and air, and that a high top

and bottom temperature is the surest means of preventing damping off, which disease is indeed the result of a sluggish action in the plant or impaired vital energy. In early forcing, however, this practice must be modified considerably. During the dark days of February and March a high bottom-heat will compel the plants to grow; but the pale sickly foliage which they make under such circumstances will perish before the first blink of the April sun. In early forcing, therefore, of the Melon, it is much better during dull sunless weather, by a lowered top and bottom temperature, to keep the plants still, and make hay while the sun shines. Mere elongation of the tissue, the result of hard forcing during the early part of the year, may be growth, but it is not progress, for in the end neither time nor quality will be gained.

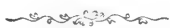
With regard to bottom-heat generally, it may be laid down as a maxim, based upon experience, that all plants, from Pines to Potatoes, require a root-temperature equal to the mean temperature necessary for the development of the branches. I do not mean to say, of course, that we cannot succeed partially unless these conditions are strictly fulfilled, but I say that the nearer this is accomplished, our success will be the greater. This is proved by everyday experience; and the question is not whether bottom-heat is necessary, as has been argued at great length in the case of Vines, for instance, but how is it to be applied? That Vines will not only stand, but be immensely benefited by, a high root-temperature, has been proved often enough—witness its effects in the forcing of pot Vines. We started some last November, at the same time as our early vinery; the fruit on these is now ripe, but the early house will not be ready for five weeks. The pot Vines were plunged in a bed of leaves the most of their time; in the other case the roots of the Vines are in an outside border. The inference is plain. Yet we have at various times been astonished with accounts of Grapes being ripened by the beginning of May, though the roots of the Vines had never enjoyed more than a winter temperature. I am afraid such feats must be put down among the things that are not dreamt of in our philosophy, and be reserved for some future Lindley to unravel.

My convictions regarding the importance of heated borders are unshaken, and have been forced upon me by experience of the most conclusive description, though I am not an advocate of some modes of heating. We have two vineries here, which I will for convenience call No. 1 and No. 2. No. 1 is an old vinery, destined to be taken down in its turn and rebuilt, and which has for the last four years been pressed into service as an early house. The roots of the Vines are all outside. The border is about 4 feet deep, or rather more, and has apparently never been drained in any way underneath—for the reason, perhaps, that the sub-soil here is dry and rocky; and in anticipation of having to renew the border entirely before long and replant, we have never disturbed it. No. 2 is a new vinery, but the Vines are about forty or fifty years of age, and in excellent health; their roots are all outside also, but the border in this case, having seemingly been made or renewed at a later period, is thoroughly drained, the bottom being covered with about 9 inches of rubble, and intersected with good drains, 4 feet apart. In addition to this, as the house was intended to be pushed forward for early work while No. 1 was being rebuilt, we, between two and three years ago, cut a wide drain along the front of the border, the lower end of which was made to open into a pine-stove, which is on a lower level than the vinery; and all the old cross-drains under the border were let into the front drain, which was carried forward into a house on a higher level, so that a current of warm air from the pine-stove was made to pass continually along the front of the border, and by shutting the top end of the drain at intervals it was made to circulate also among the

rubble under the roots of the Vines. The plan has been in operation for two winters; and now for the result. The great difficulty with No. 1 has always been the getting the Vines to start easily, and with hard forcing to have the Grapes ripe by the middle or end of May, owing, no doubt, to the deep undrained border into which the roots have penetrated. In November 1867 the border of No. 1 was covered with about 18 inches of leaves and litter, and the house started at the same time. The border of No. 2 was covered the same way a month later, the air-drain turned on, and the house started. Forcing was conducted in both at the same rate, but the Grapes in No. 2 were only a week behind No. 1 in being ripe, and we were cutting from both houses at the same time to send to London. Again, No. 1 was last autumn started at the beginning of October and No. 2 at the beginning of November; the latter broke readily, and was in bloom before No. 1, which has in consequence been held back as second house, and I fully expect we will be able to cut from No. 2 by the end of April. I need not say that the crop in No. 2 is always by far the best, and there is never either shanking or red-spider. I may state that the current of warm air from the pine-stoves is generally moist, and a mulching is left on the border all the summer.

Assuming, therefore, the necessity of bottom-heat for early vineries, the only question to be solved is, what is the safest and most economical method of applying it? Hot-water pipes are most convenient, and, in judicious hands, are no doubt safe enough. I am very far from thinking that the failures which have attended their use in the hands of a few experimentalists are to be taken as an argument against them. Nevertheless, I believe, if all the Vine-borders in the country were heated with pipes in the ordinary way, there would be such destruction of Vines as was never before heard of, and a universal wail from John o' Groats to the Land's End. People's discretion and good sense are not always equal to their faith in some receipts, and I have strong suspicion that this is the case with some in the matter of bottom-heat. I have in my mind's eye a case where, after much sagacious deliberation, it was determined to introduce pipes under the border of a *late* vinery. The house was erected, the border made, and the Vines planted; forcing top and bottom was commenced, and evidently carried on at a rattling rate, in sanguine anticipation of the result, which was soon apparent. But "the best-laid schemes of mice and men gang aft agley:" the Vines, instead of making the expected rush to the top of the house in rampant vigour, made a feeble attempt to get hold of the bottom wire, and then perished. After much wonder and comment it was eventually concluded that the soil must be bad, or the Vines had some hereditary disease; at all events, it was clear that they were exceedingly stupid and ungrateful, and did not appreciate the advantageous start in life which they had had; and so fresh soil was procured, and fresh Vines of a different variety, which were planted and another start made. The plants struggled through the summer, but looked as if another season would terminate their existence. They were, however, rescued in time, and as the bottom-heat pipes were arranged in an unsatisfactory manner in connection with the top-heat, they were plugged up, and their use discontinued. In careless or unskilful hands there are the elements of danger about pipes when they are placed in proximity to the roots; if used continually, as some seem to imagine they ought to be, they exert a drying influence in the wrong place, and arrest all capillary action from beneath. If they were sunk, say, 18 inches in the subsoil, instead of being laid among the drainage, all danger would probably be averted, provided the border was always well watered, sufficiently to soak even the subsoil if it was dry. This plan would entail a little more expense in fuel, but it would be safe and not impracticable. Fire-heat

underneath the roots of plants is unnatural, but it is safe, provided the heating power is situated deep enough. We are told on good authority that the effect of the heat on vegetation around hot springs is wonderful; and I know of a coal-pit which has been in a candescent state for years, and its track above ground is marked by the earliness of vegetation. The heat is just sufficient to accelerate the maturation of vegetables and fruit, and keep the water in the wells tepid; and I have heard of cottagers located upon this favoured strip, who send their early Potatoes to the market when they are selling by the pound, and realise a handsome profit. This, however, is bottom-heat on a scale which would hardly pay even for Grape-growing, but it indicates the conditions to be arrived at, if we wish to be successful in its application for that purpose. J. S. W.



TO KEEP THE FRUIT OF THE STRAWBERRY CLEAN.

It is quite impossible to keep the fruit of the Strawberry free from sand without placing something or other underneath it. Of all the different materials used I consider that bark is best. I have used many. For instance, drain-pipes placed along each side the row, and the fruit-stalk resting upon them, was a system long practised in this neighbourhood. Slates and paling placed upon bricks, or small fir-branches stuck in the ground, and the fruit-stalk hanging over them. Still a great part of the crop was rendered useless. Grass-mowings or moss answer better; but if the season be wet, it soon rots and has a very unsightly appearance—in fact, at all times when it is dried or bleached white: whereas bark, being nearly the colour of the soil, makes it pleasant to the eye, and although it be spread over quite thin, will keep the fruit clean and last the fruiting season. I have noticed after wet days grass-mowings battered to the ground, and they took a long time in drying. Now the bark, being loose, acted like drainage. Whenever the rain was over it was dry, which is the saving of the fruit. It does not encourage slugs or snails as grass-mowings do, and answers as a top-dressing. The Strawberry appears to benefit by it. I have likewise used straw, but nothing answers so well as bark both for look and purpose. It is very cheap—in many places can be had for nothing, where other material except grass is often very scarce. Grass I consider the worst for the weeds it produces, and the great enemy to Strawberries, slugs, to which it gives shelter. Nobody cares to eat after snails; and to see a large Strawberry pierced through and through by them often draws forth maledictions upon their heads from some of the fair sex, just as if the fine Strawberry was quite unfit for a snail to eat; but eat it he will if he gets the chance, so we must try and give him no shelter. Should any of the readers of the 'Gardener' get but one cartload of bark from the tanyard and try it, I am confident it will give them satisfac-

tion, I have a few rows of Elton Pine Strawberry twelve years old, and they are as healthy and fruit as well as others I have at two years old. After the crop is gathered I fork in the bark and give a slight topdressing of dung well rotted, and there they remain until next fruiting season. I always have succeeded in producing good crops.

ADAM RENTON.



SCOTTISH ARBORICULTURAL SOCIETY.

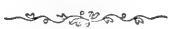
THE Sixteenth Annual General Meeting of this prosperous Society was held at the Craigie Hall, St Andrew Square, Edinburgh, on Wednesday, the 3d of November 1869, at 1 P.M., a large gathering of the members being present; the chair was taken by the President of the Society, Robert Hutchinson, Esq. of Carlowrie, F.R.S.E. The minutes of the last annual general meeting and committee meetings having been read, and the President having been re-elected, he then proceeded to deliver his inaugural address, from which we take the following extract:—

“There is also another and more practical cause in which we are called upon to assist, and that is, in endeavouring to ascertain exactly the influence which vegetation has, or rather the influence which *woods* exert, on the health of the country, both directly and indirectly, through their bearing on the rainfall. This is a most important and most interesting branch of arboricultural science, and one which is yet completely in its infancy.

“The attention of scientific men has only lately been aroused to the fact that trees modify very materially both the climate and the rainfall of a country; and in order to ascertain the precise nature and extent of the influence they exercise, very minute and careful observations, and a series of registrations in different localities, under different circumstances, must be made. This is a work which falls very particularly within our immediate province as a Society, and we must not shirk it, but must each one carefully and conscientiously do the portion of it which falls to his hand to do; and by all labouring together, an immense amount of light may be thrown on this important question, which may be useful to the more purely scientific minds and associations; and should we, in our humble investigations, aid thereby in defining laws by which our country will be benefited, both in the increased health of its inhabitants and in the improved abundance of its harvests, the reward of the pains and trouble expended will be a rich one. But, gentlemen, besides the good we may help, by God's blessing, in doing to our countrymen, we shall certainly be conferring a great boon on ourselves by cultivating a habit of intelligent observation. We cease to be like ‘dumb driven cattle,’ and become ‘heroes in the strife,’ when we lift our daily work out of the mere routine of petty drudgery into the willing co-operation in the great battle of knowledge against ignorance; and every day, as we go on striving, the field of our view will open up and enlarge, and we will find an intensified interest in our lives, and in everything that surrounds us. The dignity and importance of arboriculture as a science is at last, I am happy to say, forcing itself upon public attention, and the work of the forester is making itself felt as an agency of immense power for good or for evil, according as it is performed. Unfortunately, in former years, from ignorance of climatic and hygienic laws, which are now acknowledged, forestry was regarded as mainly a necessary work

of destruction. This is now authoritatively admitted and referred to by the Under-Secretary of State for India—Mr Grant Duff—who, in introducing his financial statement in the House of Commons, in the last session of Parliament, said (referring to India Forest Conservancy)—‘No one who had not looked into this subject, had the faintest idea how terrible were the effects, over wide regions of the globe, of carelessness in keeping up a proper proportion of trees.

“Let any one to whom the whole matter was new, turn to the remarkable work of the American Minister at Florence, Mr Marsh, upon ‘Physical Geography as Modified by Human Action,’ and he will shudder at the dangers which we have only just escaped. If our predecessors in India had known what we know, much of the enormous expense which we are now being put to with regard to irrigation would have been quite unnecessary. But the mistakes of former days are past praying for, and we can only now rejoice that the conservation of the forest has been recognised as a great State necessity, and that a regular forest department has been inaugurated, which will take to India the science of France and Germany.’ Now, gentlemen, with regard to this speech of the Indian Secretary, I have a remark to make. The schools of forestry in these countries are famous, and deservedly so; but I am proud to say that, in my humble opinion, Scotland, without any school of forestry, is equally famous in this department. And one of the necessary qualifications—in fact, *the* concluding touch to the education of those young foresters, who are, according to Mr Grant Duff, ‘to carry to the East the science of France and Germany’—is, that they must for a time, after being in France and Germany, have studied under some approved *Scotch* forester in Scotland—to rectify, I suppose, any erroneous ideas imbibed in France and Germany previously. Yes, gentlemen, in the ranks of this Society there have been found many scientific foresters, who have been chosen by the Government, and sent forth to our Indian empire; and at the present moment, if I am not mistaken, two young men—members of the Scottish Arboricultural Society—are about to follow those pioneers who have carried the name of our Society to the jungle and the Himalayan peaks, and who are already showing that Scotch energy and shrewdness are not unequal to grapple with the difficult problem of the conservancy of the Indian forests.”



EDUCATION.

TO THE EDITOR OF THE ‘GARDENER.’

SIR,—Much has been written within the last few years on education for gardeners. Without saying one word against it, for it is invaluable, particularly to the class of gardeners who represent the minority—the noblemen’s gardeners—for my part, I think that little education is wanted for the generality of gardeners. In fact, I think education is rather a drawback than otherwise to many gardeners, for I really think that many employers do not care about educated servants. If they can get a man to produce plenty of fruit, vegetables, and flowers, that is all that is required of him. In fact, the generality of places require a man to be a thorough practical gardener, and at the same time to be a common labourer. That is one reason why I think education is only required by one gardener in fifty. If you will kindly allow me space in your valuable magazine, I will give your readers a short history of a gardener, if I might be allowed to call myself one. In the first start off I served an apprenticeship at a nobleman’s place, where they kept about twenty men in the gardens; next I went to another large place for

improvement, where I paid to the head-gardener three shillings per week for two years, and one shilling for another year: I never learnt anything from the gardener himself. My next place was to be foreman at a baronet's place: I stayed eighteen months there. The next move was to me quite a different scene of life. —I took a head-gardener's situation, where I had three men under me. After staying five years, I left, because I could not or would not *garden* according to the coachman's ideas (a man without education, only he had the gift of the gab). My next situation was a single-handed place, which I took more for convenience than anything else; but it turned out otherwise, for six other servants besides myself were turned away without warning, or, worse still, without character, in consequence of an event with which I had no connection. And now for the gardener's difficulties. After being out of work for four weeks, I went into the nurseries, or, what is more properly called the gardener's hospital; wages from 3s. 6d. to 15s. per week, paying 3s. for rent. After four months I got a good recommendation from a previous master to another place, where I stayed three years; and I must say I ought to have been there yet; but most of us throw a good chance away once in our lives. I have been sorry ever since I left it; although I had the chance to go back, at the time my false pride would not allow me. My next move was what I thought a good chance; but, alas! what it is to think without knowing, for it turned out one of the most miserable places that man could go to, although it was a fine old place and belonged to a lady of rank. After three years' service I left to get my wages. My last move was to my present place. After so many years of experience in gardening, I have landed myself, wife, and five fine boys, in an out-of-the-way place, where I am expected to produce all kinds of garden produce, and make myself both a first-rate man and a common labourer for 20s. per week. So much for education for gardeners, and paying good round sums to head-gardeners for improvement.

ONE IN DESPAIR.

[We give this as a sample of many letters on the same subject that have reached us. It in no ways proves that education is not both desirable and valuable as being one of the aids to a better position in the world.—ED.]



At the meeting of the Royal Horticultural Society, to be held on Tuesday the 21st December, the following prizes are offered—viz., By the Rev. George Kemp, F.R.H.S. and Member of Fruit Committee, for the best winter dessert of Apples and Pears, 3 dishes of each, £3 and £2.

We understand that the Council of the Royal Horticultural Society have resolved on issuing a bronze medal, to be called the "Rare Plant Medal," and to be awarded at any of the Society's meetings, for the first exhibition in this country of plants of great botanical interest.

We are informed that Lieut.-Colonel Scott, R.E., F.L.S., Hon. Secretary Royal Horticultural Society, offers for competition at the Society's first meeting in 1870—viz., January 19—Five Guineas (£5, 5s.), for an Essay on the "Principles of Floral Criticism."

SIR,—In spite of frosts and chilly weather I gathered this morning a perfectly ripe, full-sized Strawberry, which had reached maturity in the open air, and was accompanied by blossoms and fruit in other stages towards ripeness. The situation of the growth is low, not sheltered, in the valley of the Lea. Presuming this circumstance worthy of being communicated—to be chronicled as you may deem deserving or not.—I am, your obedient Servant,

JOHN EDGAR KER.

STANSTEAD ABBOTS, HERTS, 17th November 1869.

Notices to Correspondents.

Acacia Platiptera is the name of the plant sent us by a correspondent, whose initials we have forgotten ; it is a very pretty plant when well grown.

NORTHUMERIAN.—Place your Dahlia roots in a dry cellar, where frost cannot enter, and cover them over with dry sand or ashes, and they will keep perfectly well ; but see that they have not had a touch of frost before you store them.

ST AUSTILL.—Dr Hogg is a first-rate Strawberry, somewhat resembling the British Queen in shape, size, and flavour ; you cannot grow a more useful variety.

A GRAPE-GROWER.—The price you are getting for your Grapes is small, but they have been a drug in the market this season. Cut the mouldy berries out of the bunches as they appear ; keep a little fire on the house, and give air in fine weather, and sell them as quick as you can, no matter how small the price, for you will lose them all unless you do so. You would probably get more for them in London than in Edinburgh, if they were fresh and good, but the distance they would have to travel is against them, seeing they are not very fresh.

J. W.—If you have a single white scale in your Pine-pit, you will find that the whole plants will soon get overrun with them, and we know of nothing that will destroy it that will not at the same time destroy the plants. It is an insect to be dreaded amongst Pines. If the nurseryman you bought them from warranted them clean, and free from scale, we should consider him liable for your loss, though he in his turn may have been deceived by some one else. We always like to know where Pines come from before we purchase them.

S. L.—Royal George, Bellegarde, Violet Hatise, and Stirling Castle, are good forcing Peaches. We never publicly name tradesmen : you must see it would be invidious to do so. Any good nurseryman will procure the trees for you, if he has not got them in his own stock.

CUCUMUS.—There are several sorts of Cucumbers that force well in winter. We prefer Telegraph to any we know.

A. M'K.—Mildew in Vines has been very common this year, but not nearly so much so as it was some twenty years ago. Wash your rods well with soap and tepid water after removing the loose bark, then paint them all over with a mixture of sulphur, soot, tobacco-water, and a little clay to give the whole the consistency of paint.

MARY.—There is a deep-blue Viola suitable for bedding purposes in the market about London. It will probably be advertised in our pages ere long. It would suit your purpose. You will find it referred to by our London Correspondent at p. 514 of last month's 'Gardener' under the name of Viola perfection.

TAN HALL, BRIDGE OF WEIR, 23d October.

TO THE EDITOR OF THE GARDENER.

SIR,—I would be greatly gratified if any of your readers could give me information, through the medium of the 'Gardener,' about Strawberry, var. Filbert Pine ; also, whether an early or late variety.—Yours respectfully, D. M.

Having built a frame last month, and fearing the mortar would not dry quickly at so late a season, I got the inside of it plastered over with gas-tar, and have been since told that any flowers I put into it will die. Could you, or any subscriber, kindly tell me if such would be their fate. The tar was put on thinly, but has a very strong smell. A. M. A.

November 4, 1869.

[Will any correspondent give their experience of such a case ? We think the tar will kill the plants.—ED.]

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